NEC

NEAX® 1000 IVS

Very Small Platform System Manual
NEAX2000 IVS Family of Products

AUGUST, 1998

NEC America, Inc.

NEAX1000 IVS
Very Small Platform System Manual
NEAX2000 IVS Family of Products

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REGULATORY INFORMATION

1. Regulatory Requirements

The Federal Communications Commission (FCC) has established rules that permit the NEAX1000 IVS to be directly connected to the telephone network. A jack is provided on party lines or coin lines.

The telephone company may make changes in its technical operations and procedures. If such changes affect the compatibility or use of the NEAX1000 IVS, the telephone company must provide adequate notice of the changes.

This equipment complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct this interference.

2. FCC Part 15 Requirements

In compliance with FCC Part 15 Rules, the following statement is provided:

WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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3. FCC Part 68 Registration

3.1 Company Notification

Before installing the NEAX1000 IVS to the telephone network, the telephone company must be provided with the following:

- Your telephone number

- The FCC registration numbers:

	JAPAN	USA
PBX	AY5JPN-20542-PF-E	AY5USA-21582-PF-E
Hybrid	AY5JPN-20543-MF-E	AY5USA-21583-MF-E
Key system	AY5JPN-20586-KF-E	AY5USA-21584-KF-E

The Ringer Equivalence Number is 1.6B; the required USOC jacks are RJ21X, RJ2EX, and RJ2GX.

Note: *Limitations on features exist if the system is registered as a KF system. Refer to Features and Specifications for details.*

3.2 Service Requirements

In the event of equipment malfunction, all repairs will be performed by NEC or an authorized distributor of NEC. It is the responsibility of users requiring service to report the need for service to NEC or to one of their authorized distributors.

If the equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this equipment, please contact NEC America, Inc.'s Oregon plant at (503) 648-5000 for repair and/or warranty information. If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

NO REPAIRS CAN BE DONE BY THE CUSTOMER.

3.3 Location of FCC Compliance Labels

Labels stating the NEAX1000 IVS FCC registration number and compliance with FCC Parts 15 and 68 are attached on the inside of the system's front cover. Example of the labels are as follows:

"This equipment complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference."	NEAX1000 IVS
	Complies With Part 68 FCC Rules
	FCC Registration Numbers : AY5USA-21582-PF-E
	                            AY5USA-21583-MF-E
	                            AY5USA-21584-KF-E
	Ringer Equivalence : 1.6B
	NEC NEC America, Inc. MADE IN USA

4. Direct-Inward Dialing (DID) Calls

Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of the FCC's rules.

PROPER ANSWER SUPERVISION IS WHEN:

(a) This equipment returns answer supervision to the PSTN when DID calls are:
- Answered by the called station
- Answered by the attendant
- Routed to a recorded announcement that can be administered by the CPE user
- Routed to a dial prompt

(b) This equipment returns answer supervision on all DID calls forwarded to the PSTN. Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received.

EQUAL ACCESS REQUIREMENTS

This equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the TElephone Operator Consumers Act of 1990.

5. Regulatory Information on Single-Line Analog Telephones

NEC single-line telephones comply with Part 68 of FCC Rules. On the bottom of the equipment is a label that states, among other information, the FCC registration number and ringer equivalence number (REN) for the equipment. If requested, this information should be provided to the telephone company.

The equipment uses the following USOC jacks: RJ11C.

The equipment should be used only behind a PBX or KTS. The REN is used to determine the quality of device that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all, areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.

6. Hearing Aid Compatibility

The D^{term} terminals provided for the NEAX1000 IVS are hearing aid compatible. FCC rules prohibit the use of non-hearing aid compatible telephones.

NEC-type single-line telephone sets used in conjunction with the NEAX1000 IVS are hearing aid compatible. If other than NEC-type single-line telephone sets are to be used with this system, ensure that these are hearing aid compatible.

7. Industry Canada CS-03

Certification number: 140 5976A

Load Number of the equipment: 21

NOTICE: The Industry Canada label identifies certified equipment. The certification means that the equipment meets certain telecommunications network protective operational and safety requirements. The department does not guarantee the equipment will operate to the user's satisfaction.

Before installing the equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or installations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request that the user disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This protection may be particularly important in rural areas.

CAUTION 1: **Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.**

CAUTION 2: **The act of monitoring or recording telephone conversations under certain circumstances may violate federal or state statutes. Consultation with your legal counsel prior to engaging in such practices would be advisable.**

NOTICE: The Load Number assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the load numbers of all the devices does not exceed 100.

8. Safety Certifications

This equipment has been listed by Underwriters Laboratories and found to comply with all the applicable requirements of the standard for telephone equipment U.L. 1459. This equipment complies with CSA standard C 22.2 No. 225.

8.1 Safety Considerations

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury, including the following:

(1) Never install telephone wiring during a lightning storm.

(2) Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.

(3) Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

(4) Use caution when installing or modifying telephone lines.

(5) Read and understand all instructions.

(6) Follow all warnings and instructions marked on the product.

(7) Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

(8) Do not use this product near water; for example, under water pipes near a bath tub, sink, or laundry tub, in a wet basement, or near a swimming pool.

(9) Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

(10) Slots and openings in the cabinet and the back or bottom are provided for ventilation, to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.

(11) This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power source available, consult with your local power company.

(12) This product normally connected with a three wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

(13) Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.

(14) Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

(15) Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.

(16) To reduce the risk of electric shock, do not disassemble this product, but take it to a qualified serviceman when some service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the appliance is subsequently used.

(17) Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    (a)   When the power supply cord or plug is damaged or frayed.

    (b)   If liquid has been spilled into the product.

    (c)   If the product has been exposed to rain or water.

    (d)   If the product does not operate normally by following the operating instructions. Adjust only those controls, that are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.

    (e)   If the product has been dropped or the cabinet has been damaged.

    (f)   If the product exhibits a distinct change in performance.

(18) Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

(19) Do not use the telephone to report a gas leak in the vicinity of the leak.

This page is for your notes.

CHAPTER 1   INTRODUCTION

1. PURPOSE

This manual explains the installation procedure for the NEAX1000 IVS (PBX) System.

2. REFERENCE MANUAL

During installation, refer to the NEAX2000 IVS manuals listed in Figure 1-1.

REFERENCE MANUALS   DESCRIPTION

| MAINTENANCE MANUAL | ───────▶ | MAINTENANCE PROCEDURE |

| COMMAND MANUAL | ───────▶ | COMMAND DESCRIPTION |

| CIRCUIT CARD MANUAL | ───────▶ | CIRCUIT CARD DESCRIPTION |
                                                       ───────▶ CIRCUIT CARD MOUNTING CONDITIONS

                                                       ───────▶ SWITCH SETTING OF CIRCUIT CARD
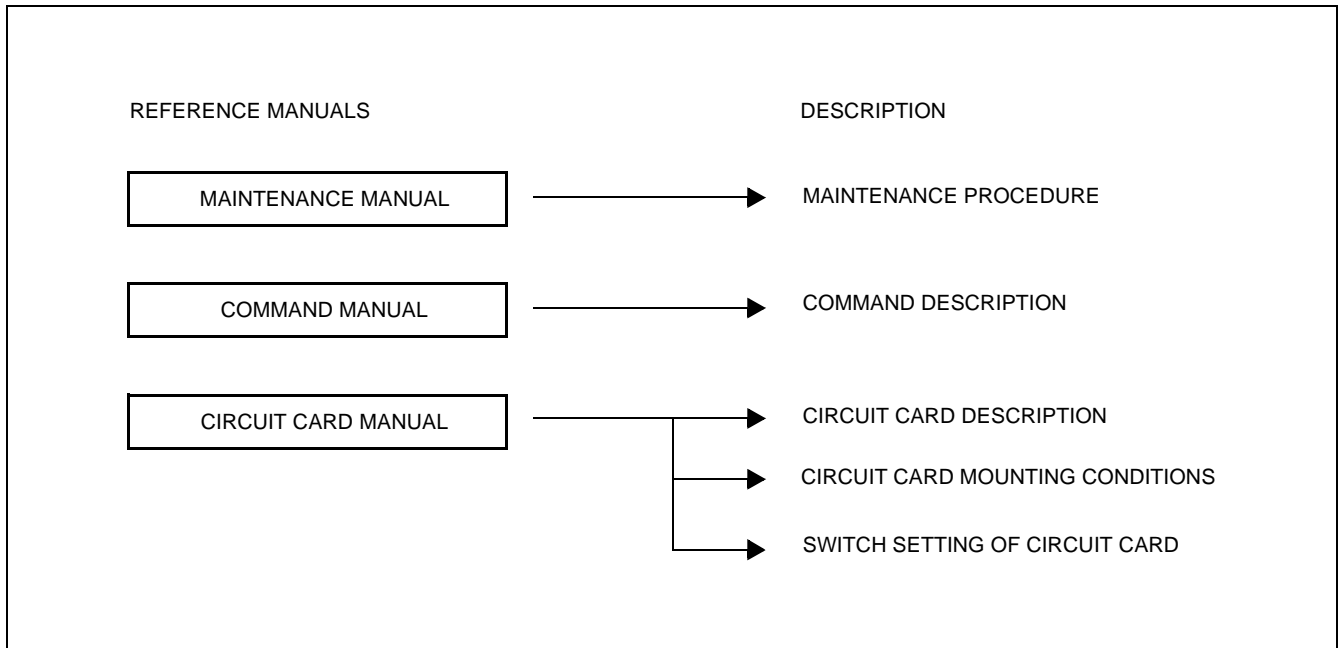
Figure 1-1   Installation Reference Manuals

3. HOW TO FOLLOW THIS MANUAL

The Installation Procedure is shown by means of flowcharts with an NAP (NEC Action Procedure) Number. The detail of the work for each step is described in corresponding NAP.

4. SCOPE OF INSTALLATION PROCEDURES

This manual covers the installation shown in Figure 1-2.

NAP-200-003:
  INSTALLATION OF MAIN EQUIPMENT
NAP-200-007:
  SWITCH SETTING OF CIRCUIT CARDS
NAP-200-008:
  MOUNTING OF CIRCUIT CARDS

MDF

SN610
ATTCON
or
DESKCON

Multiline Terminal

MDF CABLE

APR Adapter

NAP-200-005:
  CABLE RUNNING
  TO MDF

NAP-200-006:
  TERMINATION OF
  CABLES ON MDF

Single Line Telephone

TO TAS INDICATOR, ALM
INDICATOR
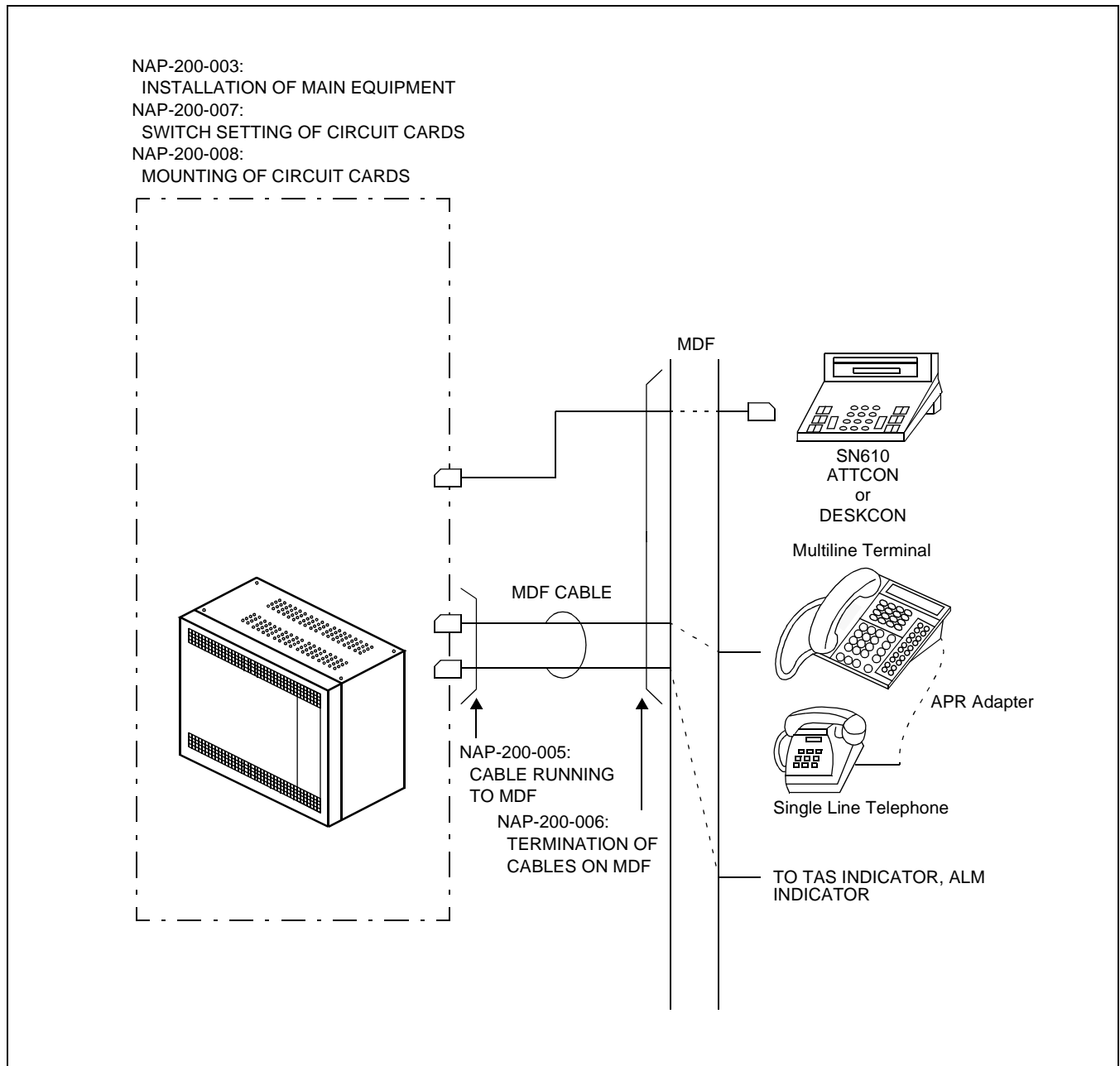
Figure 1-2   Scope of Installation Procedures

CHAPTER 2   GENERAL INFORMATION

1.   TRUNKING DIAGRAM

Figure 2-1 shows a typical trunking diagram for the PBX.

Note 3: *An external Modem is not required when the Built-In Modem on the MP is used.*
Note 4: *NEAX1000 may also be used as a Remote PIM.*
Note 5: *Customer provides equipment marked with (*).*
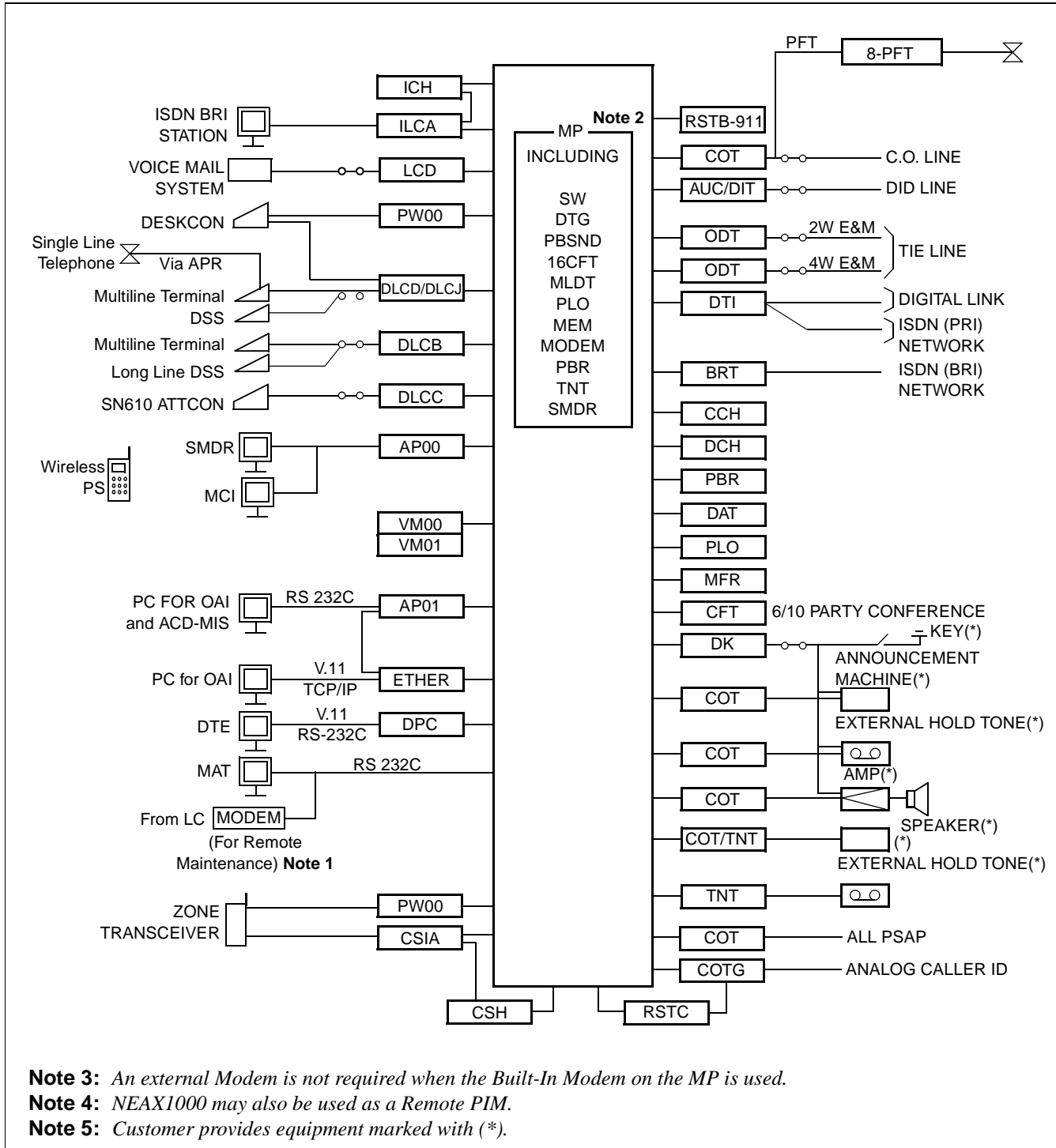
Figure 2-1   PBX Trunking Diagram

Table 2-1 Symbols in Trunking Diagram Description

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AMP	Amplifier for External Speaker	ILCA	BRI Station Line Card
AP00	SMDR/MCI/PMS/Hotel Application Card	KEY	External Key
AP01	OAI Interface Card	LCD/LCS	Line Circuit Card (for Single Line Telephone)
AUC	Analog Universal Circuit Card (Long Line Circuit, DID Trunk)	MAT	Maintenance Administration Terminal
BGM	External Music Source for Multiline Terminal Back Ground Music Service	MDF	Main Distribution Frame
CCH	Common Channel Handler Card	MEM	Main Memory
CFT	6/10-Party Conference Trunk Card	MFR	MF Receiver Trunk Card (TIANI)
COT	C.O. Trunk Card	MLDT	Melody Trunk Card
COTG	Analog Caller ID Trunk Card	MODEM	Modem
CSIA	Zone Transceiver Line Card	MP	Main Processor Card
DAT	Digital Announcement Trunk Card	PFT	Power Failure Transfer
DCH	D-Channel Handler Card	ODT	OD Trunk Card (2/4 wire E&M)
DIT	DID Trunk Card	PBR	PB Receiver Card
DK	External Relay/Key Interface Card	PBSND	PB Sender
DLCD/DLCJ	Digital Line Circuit Card (for Multiline Terminal/DESKCON)	PLO	Phase Lock Oscillator
DLCB	Digital Line Circuit Card (for Multiline Terminal Long Line/ DESKCON)	PW00	Power Card for 2 Zone Transceivers or one Attendant DeskCon
DLCC	Digital Line Circuit Card (for SN610 ATTCON)	RSTB-911	Register/Sender E911
DPC	Data Port Controller Card	RSTC	Register Card for Analog Caller ID
DSS	DSS Console	SMDR	Station Message Detail Recording
DTI	Digital Trunk Interface Card	SW	Time Division Switch
DTG	Digital Tone Generator	TNT	Tone/Music Source Interface Card
ETHER	Ethernet Control Card	16CFT	16 Circuit Three/Four Party Conference Trunk
FP	Firmware Processor Card	VM00	Digital VMS with 4-Digital Ports
ICH	BRI Station Application Card	VM01	4 additional Digital Ports

Note: *Refer to NAP-200-008 and the Circuit Card Manual for details of circuit cards.*

2. SYSTEM CONFIGURATIONS

2.1 PIM Configuration

The PBX system can accommodate a maximum of 48 ports per PIM. A maximum of 88 ports are available with a two PIM configuration (PIM0 Slot LT08/AP4 used for PN-BS00).

ONE PIM CONFIGURATION   TWO PIM CONFIGURATION
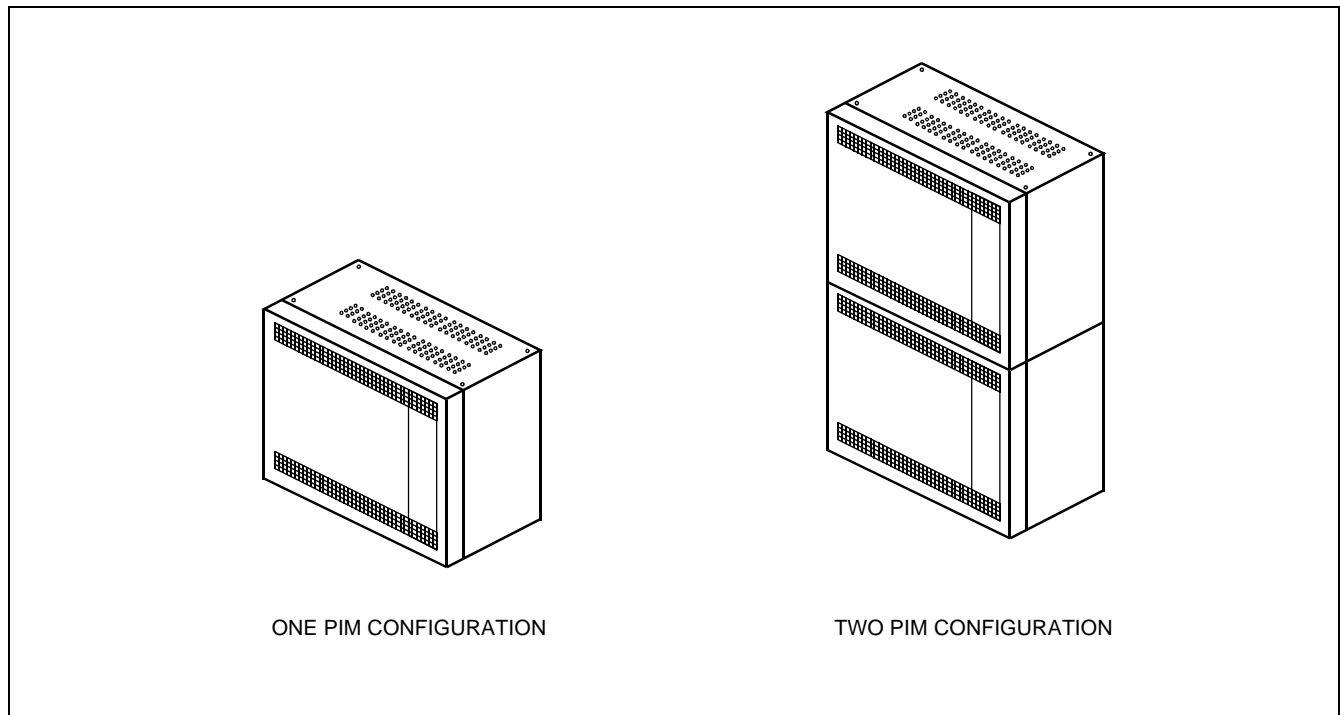
Figure 2-2   PIM Configuration

2.2 Installation Methods
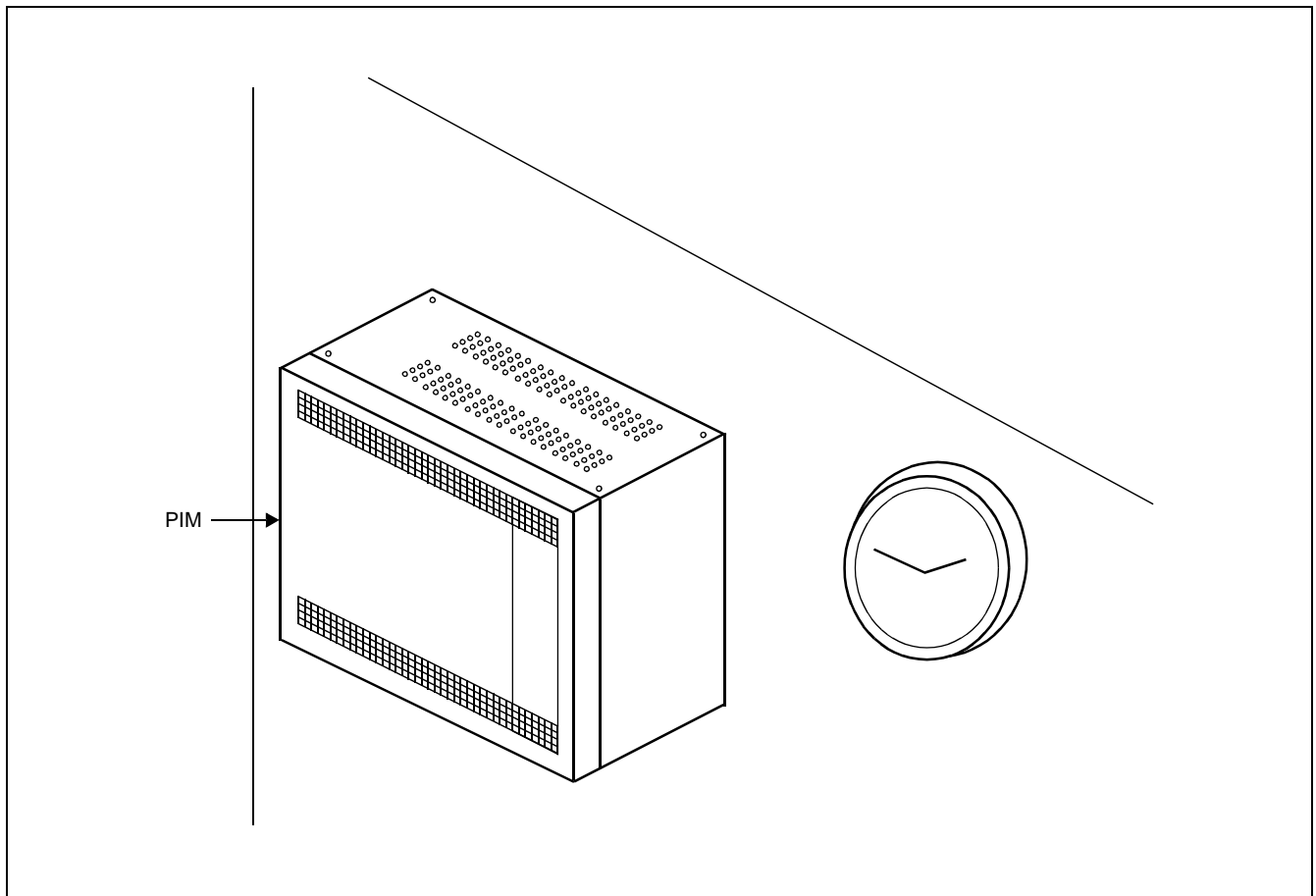
Figure 2-3   Wall-Mounting Installation
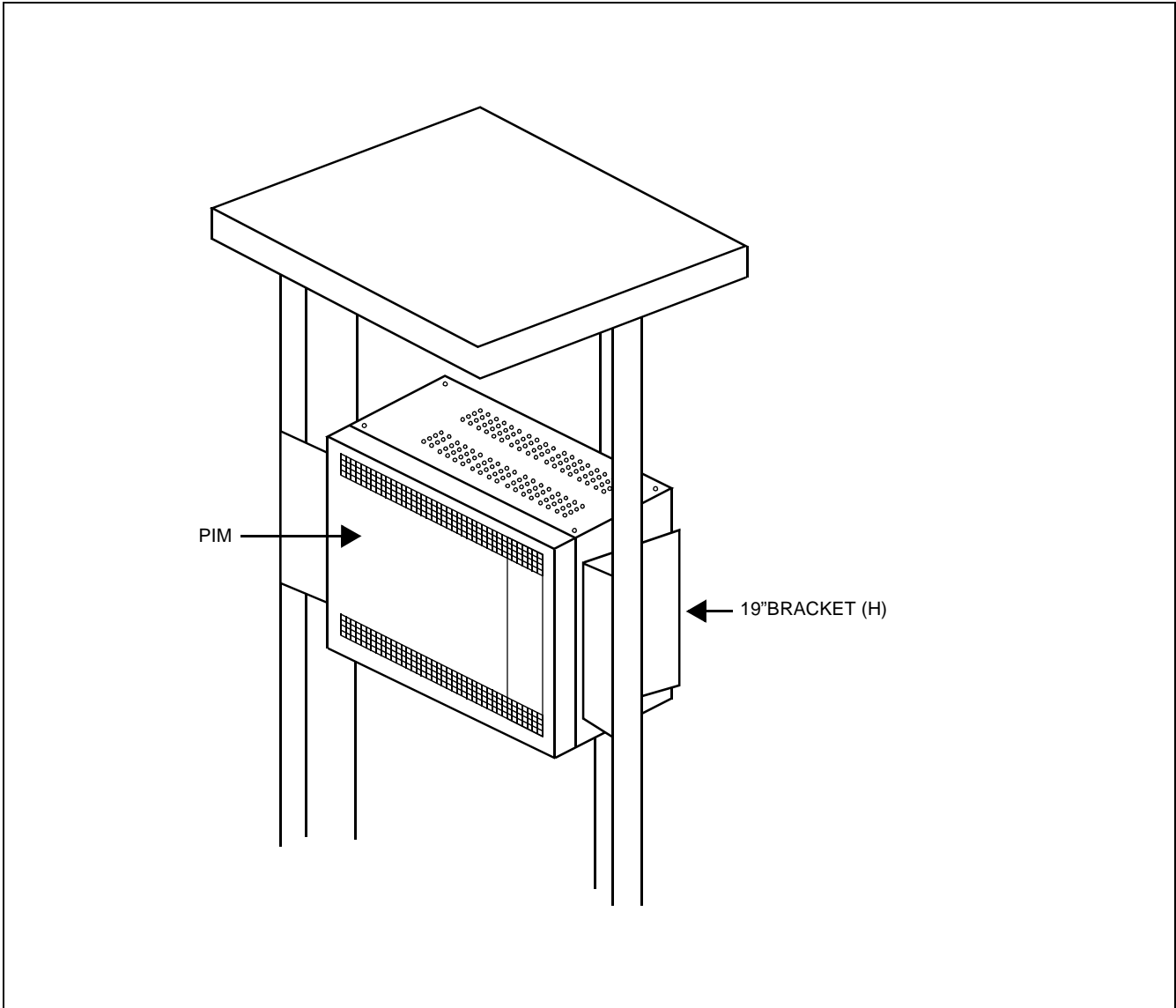
Figure 2-4   19-Inch Rack-Mounting Installation

PIM
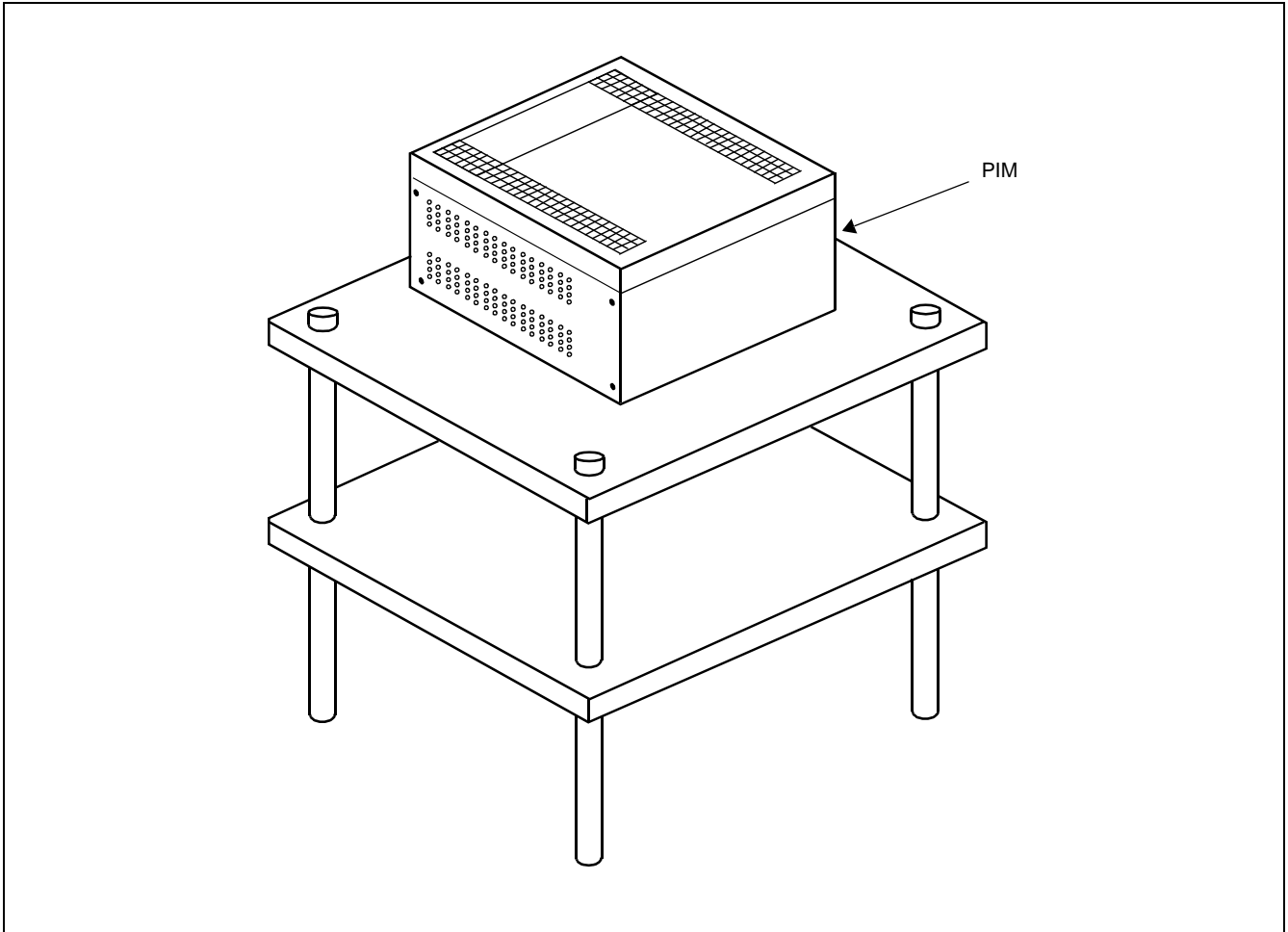
Figure 2-5   Desktop Installation

3. FUNCTIONAL OUTLINE OF EQUIPMENT

This section explains the functional outline of the equipment (modules, installation hardware, circuit cards) used in the PBX.

3.1 Functional Outline of Modules

Table 2-2 shows the functional outline of the modules.

Table 2-2 Functional Outline of Modules

MODULES	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
SN1420 PIMAB-A	PIM	Port Interface Module (PIM) A PIM provides 10 card slots for common control, Line/Trunk, and Application Processor (AP) cards. It also houses a AC/DC Power Supply and batteries for protection from short-term power interruption (standard). Two champ connectors for line/trunk (LTC0 to 1) and a connector for Power (PWR) are located at the lower front side of the PIM. A PIM provides a maximum of 9 card slots for line/trunk (LT) cards. At maximum configuration, the system is comprised of 2 PIMs and it provides 88 physical ports (48 ports x 2) to MDF (PIM0 Slot LT8/AP4 used for PN-BS00).

3.2 Functional Outline of Installation Hardware

Table 2-3 shows the functional outline of installation hardware.

Table 2-3 Functional Outline of Installation Hardware

INSTALLATION HARDWARE	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
COVER PARTS	TOP BOTTOM COVER	Bottom Cover (includes Top Cover) This hardware (bottom cover and top cover) is used for all NEAX1000 installations. A 4-rubber foot is required for desktop installation with PIM.
19" BRACKET	19" BRACKET	19-inch Bracket The 19-inch bracket is sets of hardware to mount the PIM in IEC standard 19-inch rack. One set of 19-inch bracket is required for PIM.

3.3 Functional Outline of Circuit Cards

3.3.1 Control Circuit Card

Table 2-4 shows the functional outline of each control circuit cards.

Table 2-4 Functional Outline of Control Circuit Cards

CARD NAME	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
PN-CP03	MP	Main Processor Card This card is equipped with Memory, TDSW (1024CH × 1024CH), 16-Line CFT, DTMF Sender, Clock, PLO (receiver mode 2 ports), RS-232C Ports (2 ports) for MAT/Built-in SMDR, modem for remote maintenance, and Music-On-Hold tone source (Melody IC/TNT), 4-circuit PBR (for PB calling or DID). This card is used on the basis of one per system.

PZ-PW86	PWR	Main Power Supply Card
		    Input: AC 120 V (50 Hz/60 Hz)
		    Output: –27 V (4.5 A), +5 V (7.5 A)
		One card is mounted in PIM.
		
		Note: *This card does not provide ring generator or message wait voltage.*

PZ-PW112	PWR	Main Power Supply Card
		    Input: AC 120 V (50 Hz/60 Hz)
		    Output: –27 V (3.5 A), +5 V (4.0 A)
		One card is mounted in PIM.
		
		Note: *This card does not provide ring generator or message wait voltage.*

PN-BS00-B	BS00	Bus Interface Card for PIM0 This card is equipped with functions of driver/receiver of various signals, functions of adjusting gate delay timing and cable delay timing, functions of monitoring I/O Bus and PCM Bus, and functions of controlling power supply. When the system consists of two PIMs, this card is mounted one in PIM0
PN-BS01-B	BS01	Bus Interface Card for PIM1 This card is equipped with functions of driver/receiver of various signals, functions of adjusting gate delay timing and cable delay timing, functions of monitoring I/O Bus and PCM Bus, and functions of controlling power supply. When the system consists of two PIMs, this card is mounted one in PIM1.
SPN-DAIB	DAIB	Firmware Processor-Bus Card—With T1 Used when installing PIM as a Remote PIM
SPN-DAIC	DAIC	Firmware Processor-Bus Card—With T1 Used when installing PIM as a remote PIM expanded to 43 ports.

3.3.2 Application Circuit Cards

Table 2-5 shows the functional outline of each application circuit card.

Table 2-5 Functional Outline of Application Circuit Cards

CARD NAME	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
SPN-AP00-A	AP00	Application Processor Card This card is equipped with four RS-232C ports, and is used for SMDR, H/M Printer, PMS functions and MCI. This card is used on the basis of one per system.
SPN-AP01	AP01	Application Processor Card This card is equipped with one RS-232C port and one Ethernet interface port, and is used for OAI function. Also, this card is used to expand authorization code and ACD. This card is used on the basis of one per system.
SPN-BRTA	BRI	Basic Rate (2B+D) Interface Trunk Card (S/T Interface) This card has one circuit of Basic Rate interface and provides one 2-channel PCM digital line.
SPN-ME00	EXTMEM	Memory Expansion Card This card is used with PN-AP00-A card for providing expansion memory. This card can be equipped with an expansions SRAM card (1MB) as SMDR data memory.
SPN-CC00	ETHER	Ethernet Control Card This card is used with the PN-AP01 card to accommodate the Ethernet, transmitting/ receiving a signal of TCP/IP protocol.
SPN-CK00	PLO	Phase Locked Oscillator Card This card is a phase locked oscillator for providing a synchronized clock signal with the network. This card is used when the PBX is a master office or when the PBX requires two clock supply routes and those frequencies differ.
SPN-24DTA/ SPN-24DTA-A	DTI	Digital Trunk Interface (23B+D, 1.5 Mbps) Card This card accommodates 24-channel, PCM digital lines.
SPN-4RSTB	MFR	4-line MF Receiver Trunk card This card is used for MF Signaling on Digital DID trunks. A maximum of four cards can be provided per one system, including the PN-4RSTC card.
SPN-4RSTC	CIR	4-line CALLER ID Receiver Trunk Card This card is used for CALLER ID (CLASS SM) on analog trunks. A maximum of four cards can be provided per one system, including the PN-4RSTB card.
SPN-SC00	CCH	Common Channel Handler Card This card transmits/receives signals on the common signaling channel of No. 7 CCIS.
SPN-SC01	DCH	D-channel Handler Card This card transmits/receives signals on the D channel of ISDN Primary Rate (23B+D).
SPN-SC02	ICH	ISDN-channel Handler Card This card provides the D channel signaling interface and controls an ILC (Layer 2 and 3). Provides signaling interface for two ILCA cards.

Table 2-5 Functional Outline of Application Circuit Cards (Continued)

CARD NAME	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
SPN-DAIA	DAIA	Firmware Processor Bus Card—With T1 Used in main system when connecting to Remote PIM SPN-DAIB.
SPN-4RSTB-911	MF-911	Provides MF signaling for Enhanced 911.
SPN-SC03	CSH	Channel Handler for Zone Transceivers
SPN-SC03	ICH	ISDN-BRI Channel Handler Provides D-channel signaling interface for four ILCA cards.

3.3.3 Line/Trunk Circuit Cards

Table 2-6 shows the functional outline of each line/trunk circuit card.

Table 2-6 Functional Outline of Line/Trunk Circuit Cards

CARD NAME	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
PN-2AMPA	AMP	2-line Amplifier Trunk Card This card equipped with the functions of Echo Canceller (EC), Automatic Gain Controller (AGC) and Tone Disabler (TD).
PN-AUCA	AUC	2-line Long-Line Circuit Card provided with the Power Failure Transfer (PFT) function line resistance in the case of a long-line circuit: Max. 2500 ohms (inclusive of the internal resistance of the distant office equipment) This card is internally equipped with a –48 V DC On-Board Power Supply. This card can also be used as a 2-line Direct Inward Dialing trunk card.
PN-CFTA	CFT	Conference Trunk Card Use of one card:Can control a conference of up to six participants. Use of two cards:Can control a conference of up to ten participants.
PN-4COTB	COT	4-line Central Office Trunk Card (ground-start/loop-start trunk) equipped with the functions for loop detection, sending/detecting ground on Ring/Tip wire
PN-4COTG	COT	4-line Central Office Trunk Card (loop-start trunk) equipped with the functions for loop detection, receiving/sending the Caller ID (CLASS SM) signal
PN-8COTM	COT	8-line Central Office Trunk Card (loop-start trunk only) No loop disconnect detection is provided.
PN-8COTP	COT	8-line Central Office Trunk Card (loop-start trunk only) loop disconnect detection is provided.
PN-2CSIA	CSIA	2-Line Zone Transceiver Card
PN-2DATA	DAT	2-line Digital Announcement Trunk Card Duration: Max. 60 seconds.

Table 2-6 Functional Outline of Line/Trunk Circuit Cards (Continued)

CARD NAME	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
PN-4DITB	DIT	4-line Direct In-Dialing Trunk Card This card is equipped with the function for loop detection, sending reverse signal and PB to DP signal conversion. This card is internally equipped with –48 V DC On-Board Power supply.
PN-DK00	DK	Circuit card for External Relay Control/External Key Scan This card is provided with eight circuits, and can provide the above-mentioned control functions on a per circuit basis.
PN-4DLCA/ PN-4DLCM	DLC	4-line Digital Line Circuit card for Multiline Terminal Series E/Elite/Series III/ElectraPro/DSS Console (–27 V Version, 2-wire type) **Note** This card is equipped with quick diagnostics to detect short line conditions and the normality (Synchronous/Asynchronous) of the terminal.
PN-2DLCB/ PN-2DLCN	DLC	2-line Digital Line Circuit Card for Multiline Terminal Series E/Series III/DSS Console/DESKCON (–48V Version, 2-wire type) **Note** This card is equipped with quick diagnostics to detect short line conditions and normality (Synchronous/Asynchronous) of terminal. This card is internally equipped with a –48 V DC On-Board Power Supply.
PN-2DLCC	DLC	2-line Digital Line Circuit Card for Multiline Terminal Series II/SN610 Attendant Console (–48 V Version, 4-wire type) **Note** This card is equipped with quick diagnostics to detect short line conditions and the normality (Synchronous/Asynchronous) of the terminal. This card is internally equipped with –48 V On-Board Power Supply.
PN-4DLCD/ PN-4DLCQ	DLC	4-line Digital Line Circuit Card exclusively used for Multiline Terminal Series E/Series III/DSS Console/DESKCON (–27 V Version, 2-wire type) **Note** This card is equipped with quick diagnostics to detect short line conditions and the normality (Synchronous/Asynchronous) of the terminal.
PN-4DLCF	DLC	4-line Digital Line Circuit Card for Multiline Terminal Series II/SN610 Attendant Console (–27 V Version, 4-wire type) **Note** This card is equipped with quick diagnostics to detect short line conditions.
PN-8DLCJ/ PN-8DLCP	DLC	8-line Digital Line Circuit Card for Multiline Terminal Series E/Series III/DSS Console/DESKCON (–27 V Version, 2-wire type) **Note**
PN-2DPCB	DPC	2-line Data Port Controller Card This card is used for the intra-office or inter-office digital data transmission on fixed path connection. This card can accommodate a maximum of two DTE with V.11 (X.21) interface or V.24/V.28 (RS-232C) interface.
PN-2ILCA	ILC	2-line ISDN Line Circuit Card This card provides a physical interface to ISDN Terminals.
PN-4LCD-A	LC	4-line Analog Line Circuit Card for single line telephones Loop resistance: Max. 600 ohms This card is equipped with the function for controlling Message Waiting Lamp. Each 4 circuits are equipped with momentary open function. This card is equipped with quick diagnostics to detect short and open line conditions. This card is internally equipped with a +80 V DC-DC Power Supply circuit.

Table 2-6 Functional Outline of Line/Trunk Circuit Cards (Continued)

CARD NAME	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
PN-8LCS	LC	8-line Analog Line Circuit Card for single-line telephones Loop resistance: Max. 600 Ω This card is equipped with a controller for momentary open function.
PN-M03	M03	V.35 DTE Interface Card This card is used together with the PN-2DPCB card to provide the V.35 interface.
PN-2ODTA	ODT	2-line OD Trunk Card This card can be used as either a 2-wire E&M trunk or a 4-wire E&M trunk, and is internally equipped with a –48 V DC On-Board Power Supply. Both No. 0 and No. 1 circuits must be set to same purpose (2-wire or 4-wire) in one card.
PN-PW00	PWR	Provides -48V power for one DeskCon or two zone transceivers; maximum is 3 per system; uses two card slots
PN-8RSTA	PBR	8-line DTMF Receiver Card This card can be used for a DTMF station line, DID or tie line.
PN-TNTA	TNT	2-line Tone/Music Source interface Card This card is used for BGM or Music on Hold, and is equipped with two interface for an external tone/music source.
PZ-VM00	4VM	4-Port Voice Mail Card (NEAX Mail AD-8)
PZ-VM01	4VMEXT	4-Port Expansion Card for AD-8 (VM00)

Note: *The cable length between the DLC and terminal varies depending on the type of terminal. For the line conditions each terminal, refer to Table 2-7.*

Table 2-7 Line Condition of Each Terminals

TERMINAL TYPE	CARD TYPE	CABLE LENGTH (Cable 24AWG)	REMARKS
DTP-8-1	PN-8DLCJ / 8DLCP (STANDARD)	984ft. (300m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	984ft. (300m) [3937ft. (1200m)]	
	PN-2DLCB / 2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DTP-8D-1	PN-8DLCJ / 8DLCP (STANDARD)	984ft. (300m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	984ft. (300m) [3937ft. (1200m)]	
	PN-2DLCB / 2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	

Table 2-7 Line Condition of Each Terminals (Continued)

TERMINAL TYPE	CARD TYPE	CABLE LENGTH (Cable 24AWG)	REMARKS
DTP-16-1	PN-8DLCJ / 8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB / 2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DTP-16D-1	PN-8DLCJ / 8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB / 2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DTP-32-1	PN-8DLCJ / 8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB / 2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DTP-32D-1	PN-8DLCJ / 8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB / 2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DSS/BLF Console **Note 2**	PN-8DLCJ / 8DLCP (STANDARD)	984ft. (300m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	984ft. (300m)	
	PN-2DLCB / 2DLCN (LONG)	2788ft. (850m)	
ETJ-8-1	PN-8DLCJ / 8DLCP (STANDARD)	984ft. (300m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	984ft. (300m) [3937ft. (1200m)]	
	PN-2DLCB / 2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
ETJ-16DC-1	PN-8DLCJ / 8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB / 2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	

Table 2-7 Line Condition of Each Terminals (Continued)

TERMINAL TYPE	CARD TYPE	CABLE LENGTH (Cable 24AWG)	REMARKS
ETJ-16DD-1	PN-8DLCJ / 8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB (LONG)	2788ft. (850m) [3937ft. (1200m)]	
ETJ-24DS-1	PN-8DLCJ / 8DLCP (STANDARD)	492ft. (150m)	**Note 1**
	PN-4DLCD / 4DLCQ (STANDARD)	492ft. (150m) [3937ft. (1200m)]	
	PN-2DLCB (LONG)	2788ft. (850m) [3937ft. (1200m)]	
SN610 ATTCON	PN-2DLCC (LONG)	3937ft. (1200m)	
	PN-4DLCF (STANDARD)	984ft. (300m)	
DESKCON	PN-4DLCD / 4DLCQ and PW00 or AC Adapter	1500ft. (457m)	**Note 3**
	PN-8DLCJ / 8DLCP and PW00 or AC Adapter	1000ft. (304m)	

* The value in the [ ] shows the cable length when using the long line function.

Note 1: *When using PN-8DLCJ or PN-8DLCP card, it is not available long line function.*

Note 2: *The DSS/BLF Console requires local AC/DC power supply.*

Note 3: *With AC/DC power at DESKCON 3000' with 4DLCD*

4. CIRCUIT CARD INSTALLATION CONDITIONS

4.1 Circuit Card Mounting Slots

Figure 2-6 shows circuit card mounting slots allocated in the PIM, on the basis of circuit card type.

LT01 - LT08 : Line/trunk circuit card mounting slots
- LT00 : No connection to MDF. When NEAXmail AD8 is mounted here, internal modem leads for AD8 are brought out on pins 25 & 50 of LTC1 cable for connection to single-line station or C.O. trunk.
- LT01 - LT04, LT06, LT08 : All line/trunk circuit cards can be mounted.
- LT05, LT07 : 4-port circuit cards that require cabling may be mounted only when 8-port cards are not mounted in the slot to the left of them.

AP0 - AP5 : Application circuit card mounting slots
MP : PN-CP03 mounting slot
BUS : PN-BS00-B (Slot 08 on PIM0), PN-BS01-B (Slot 09 on PIM1) mounting slot
PWR : PZ-PW86/PW112 mounting slot
PWR0B : Connector for termination of ring generator when single-line card(s) are mounted. System power supply does not supply ringing voltage[2]
PWR0C : Connector for termination of PW91 Power for Zone Transceivers

[1] *When an 8-port card is mounted in Slot 04/06, Slot 05/07 can only be mounted with the following cards:*

SPN-AP00	*SPN-AP01*	*SPN-ME00*	*SPN-SC01*
SPN-SC02	*SPN-4RSTB*	*SPN-4RSTB-911*	*SPN-4RSTC*
SPN-CK00	*SPN-CC00*	*PN-M03*	*SPN-SC03 (CSH)/(ICH)*

[2] *It is recommended that an APR adapter, which has a built-in ring generator, be used in dual-port mode to provide interface for single-line devices. APRs provide hookflash and disconnect signaling when 1800 series software or higher is used.*

Figure 2-6   Circuit Card Mounting Slots

4.2 Installation Conditions

(20) The application circuit cards PN-BRTA and PN-24DTA-A cannot be mounted in slots AP1 or AP3 when an 8-port card is mounted in Slot 04 or 06, since these slots share a connection to the MDF via the backplane.

(21) The application circuit card type PN-CC00 can be mounted in any LT/AP slot, but it occupies two slot positions; i.e. the slot immediately to its right must be vacant.

(22) PN-PW00 can be mounted in any LT/AP slot or LT slot, but it occupies two slots; i.e., the slot immediately to its left must be vacant.

(23) AD8 (PN-VM00) can be mounted in any LT or LT/AP slot, but it occupies three slots; i.e., the two slots immediately to its left must be vacant. It is recommended that LT00 be used when mounting the AD8 since the vacant space to its left is specifically provided for this purpose and only LT00 brings leads out for termination of the AD8 internal modem.

Note: *The PN-CC00 must be mounted adjacent to its related PN-AP01 card, in order to allow the connection of cable type 48-TW-0.3 CONN CA between these cards.*

CHAPTER 3 INSTALLATION PROCEDURE

1. PRECAUTIONS

1.1 Grounding Requirements

The system grounding must have a specific ground resistance and AC noise level, and is to be connected to a pre-determined terminal in the PBX. Standard grounding requirements are as follows:

- Communication grounding: Less than 10 ohm

- Protective ground for PIM: Less than 10 ohm

Note: *The AC ripple on these various grounds should be less than 0.5 Vp-p.*

CAUTION: Grounding circuit continuity is vital for safe operation of telecommunication equipment. Never operate this equipment with the grounding conductor disconnected.

1.2 Static Electricity Guard

The installer must wear a grounded wrist strap to protect circuit cards from static electricity.

• WHEN PLUGGING/UNPLUGGING A CIRCUIT CARD

PBX

FRAME GROUND SCREW
CONNECT THE GROUND WIRE TO THE
FRAME EARTH OF THE EQUIPMENT.

WRIST STRAP

• WHEN HOLDING A CIRCUIT CARD

NEVER TOUCH THE COMPONENTS
OR SOLDERED SURFACE WITH
BARE HANDS.
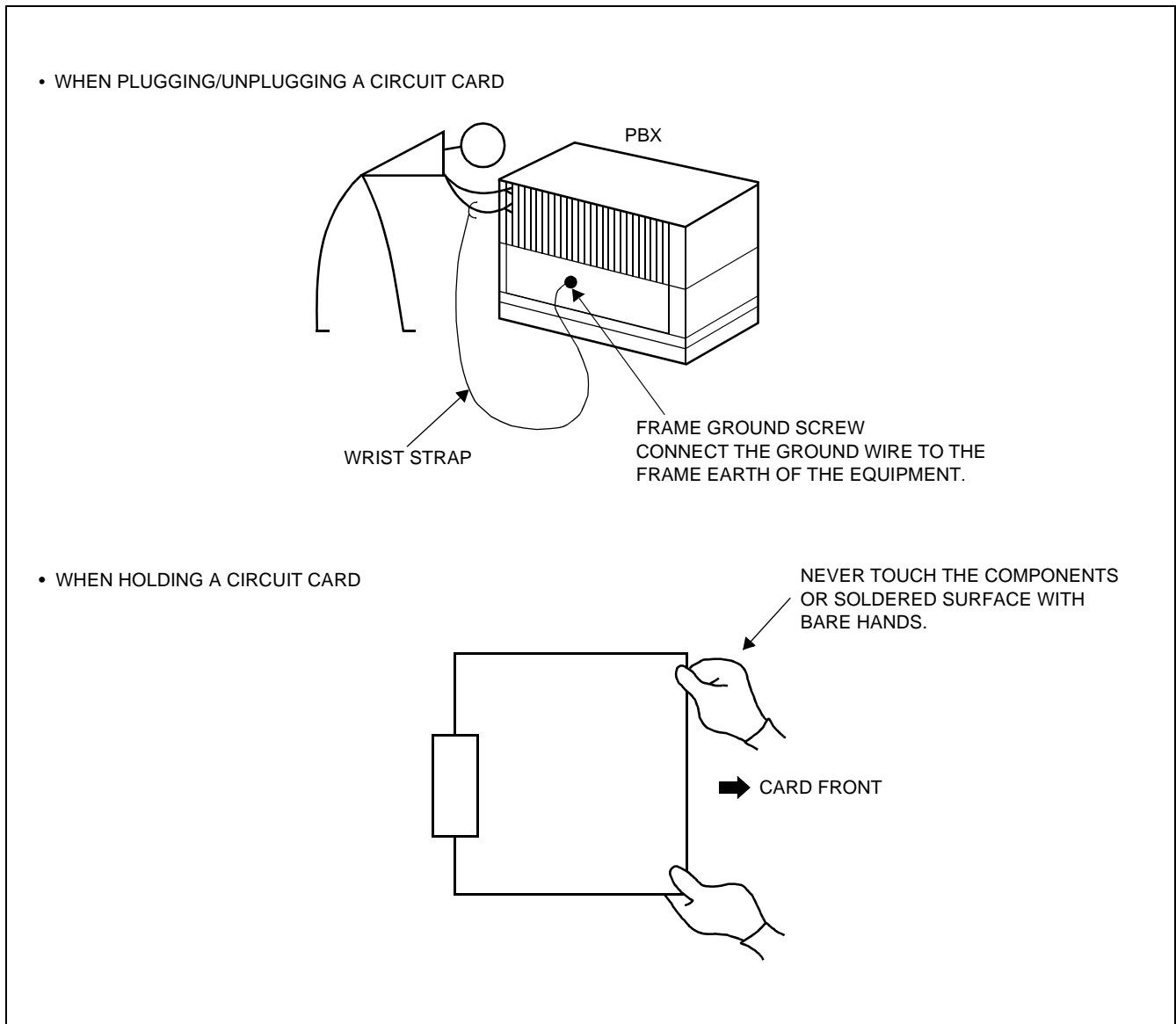
CARD FRONT

Figure 3-1   Static Electricity Guard

- WHEN MAKING A SWITCH SETTING ON A CIRCUIT CARD

CIRCUIT CARD

WEAR A WRIST STRAP AND PERFORM THE WORK ON A GROUNDED CONDUCTIVE WORK SURFACE.

- WHEN CARRYING A CIRCUIT CARD

CIRCUIT CARD

CONDUCTIVE POLYETHYLENE BAG

WHEN CARRYING A CIRCUIT CARD AROUND, KEEP THE CARD IN A CONDUCTIVE POLYETHYLENE BAG.
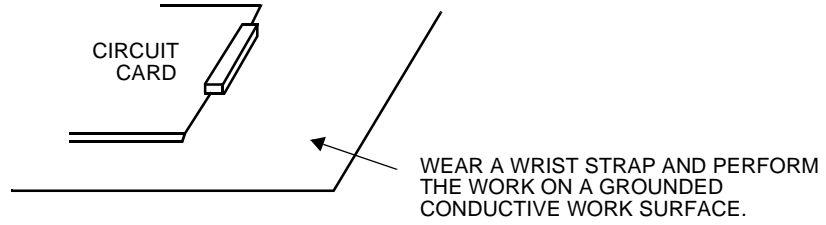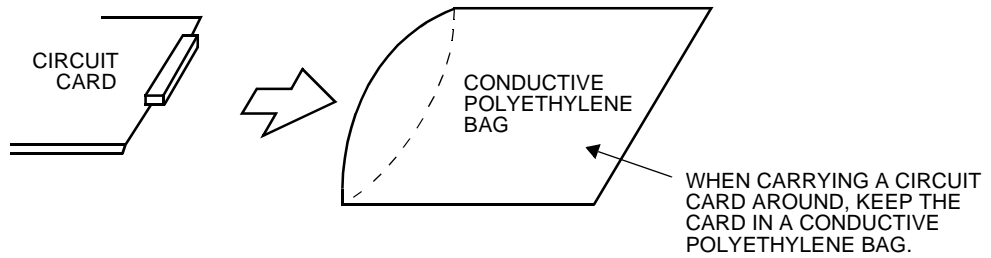
Figure 3-1 Static Electricity Guard (Continued)

1.3 Removing/Inserting Circuit Cards

When removing a circuit card from the PIM or when inserting a circuit card in the PIM, follow the procedure in Table 3-1.

Table 3-1 Removing/Inserting Circuit Cards Procedure

CIRCUIT CARD	PROCEDURE		CONDITION
	INSERT	**REMOVE**	
• PN-CP03 (MP) • PZ-PW86 (PWR) • PZ-PW112 (PWR) • PN-PW00	Power off ↓ Insert ↓ Power on	Power off ↓ Remove ↓ Power on	Always insert or remove these circuit cards with power off to prevent damage to the card or other system circuitry.
• PN-AP00 (AP00) • PN-ME00 (EXTMEM) • PN-BRTA (BRT) • PN-BS00-B (BS00) • PN-BS01-B (BS01) • PN-CK00 (PLO) • PN-24DTA-A (DTI) • PN-4RSTB (MFR) • PN-4RSTC (CIR) • PN-SC00 (CCH) • PN-SC01 (DCH) • PN-SC02 (ICH) • PN-SC03 (ICH) • PN-SC03 (CSH) • PN-VM00	Power off or MB switch on ↓ Insert ↓ Power on or MB switch off	Power off or MB switch on ↓ Remove ↓ Power on	Always insert or remove these circuit cards under Make Busy condition or power off to prevent damage to the card or other system circuitry.
• PN-AP01 (AP01) • PN-CC00 (ETHER)	Refer to the OAI System Manual.		

CAUTION: **Always hold the card name label area when inserting or removing a circuit card. Touching another area may result in exposure to hazard voltages.**

PBX

NEVER TOUCH THE COMPONENTS OR SOLDERED SURFACE WITH BARE HANDS.

CARD FRONT
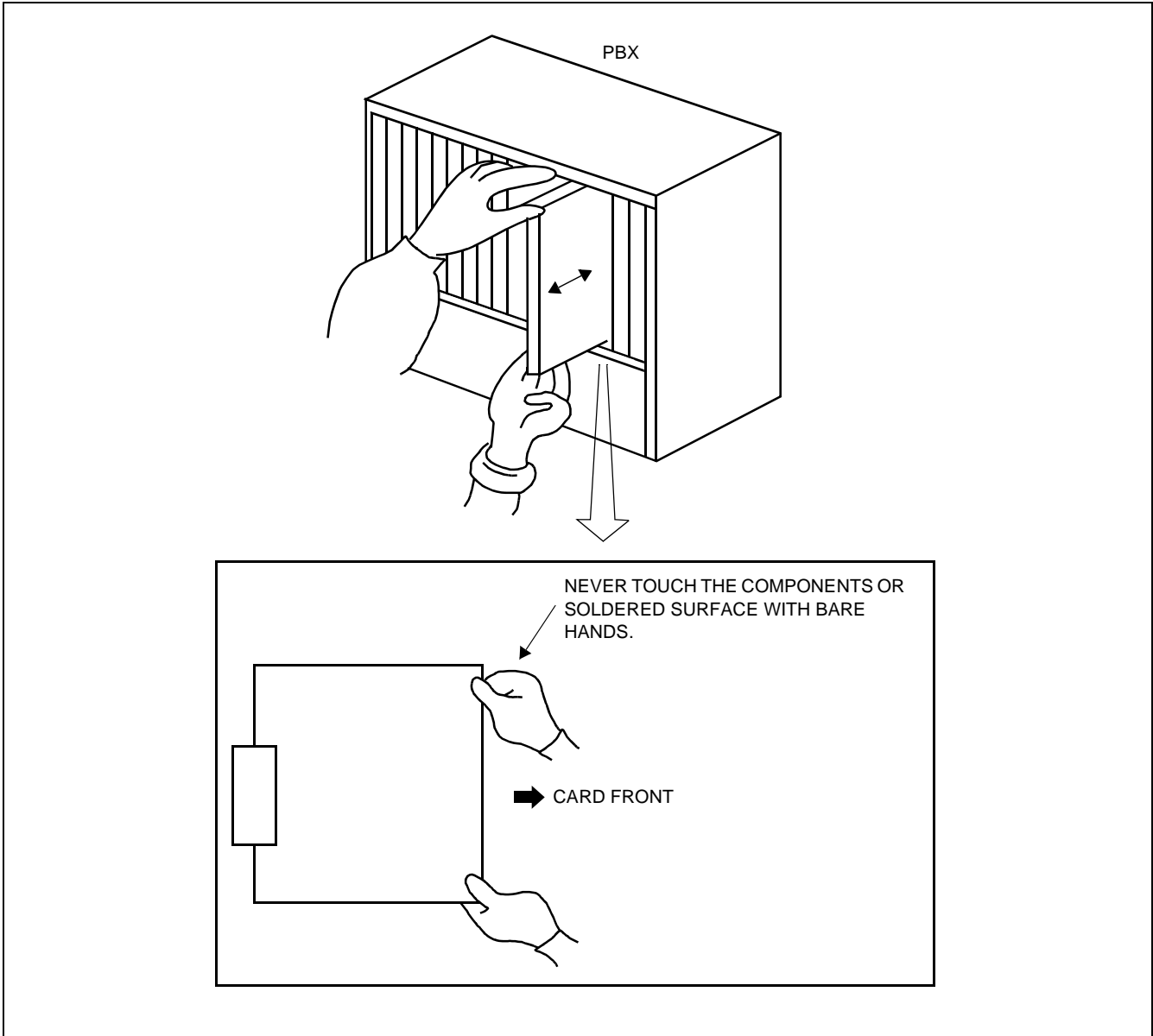
2. PROCEDURE

This section explains the procedures for installing the PBX system. The installer should follow the flowchart procedure shown in Figure 3-2. In the flowchart, an NAP (NEC Action Procedure) Number, denoted on the right side of each action, refers to the details for each procedure.
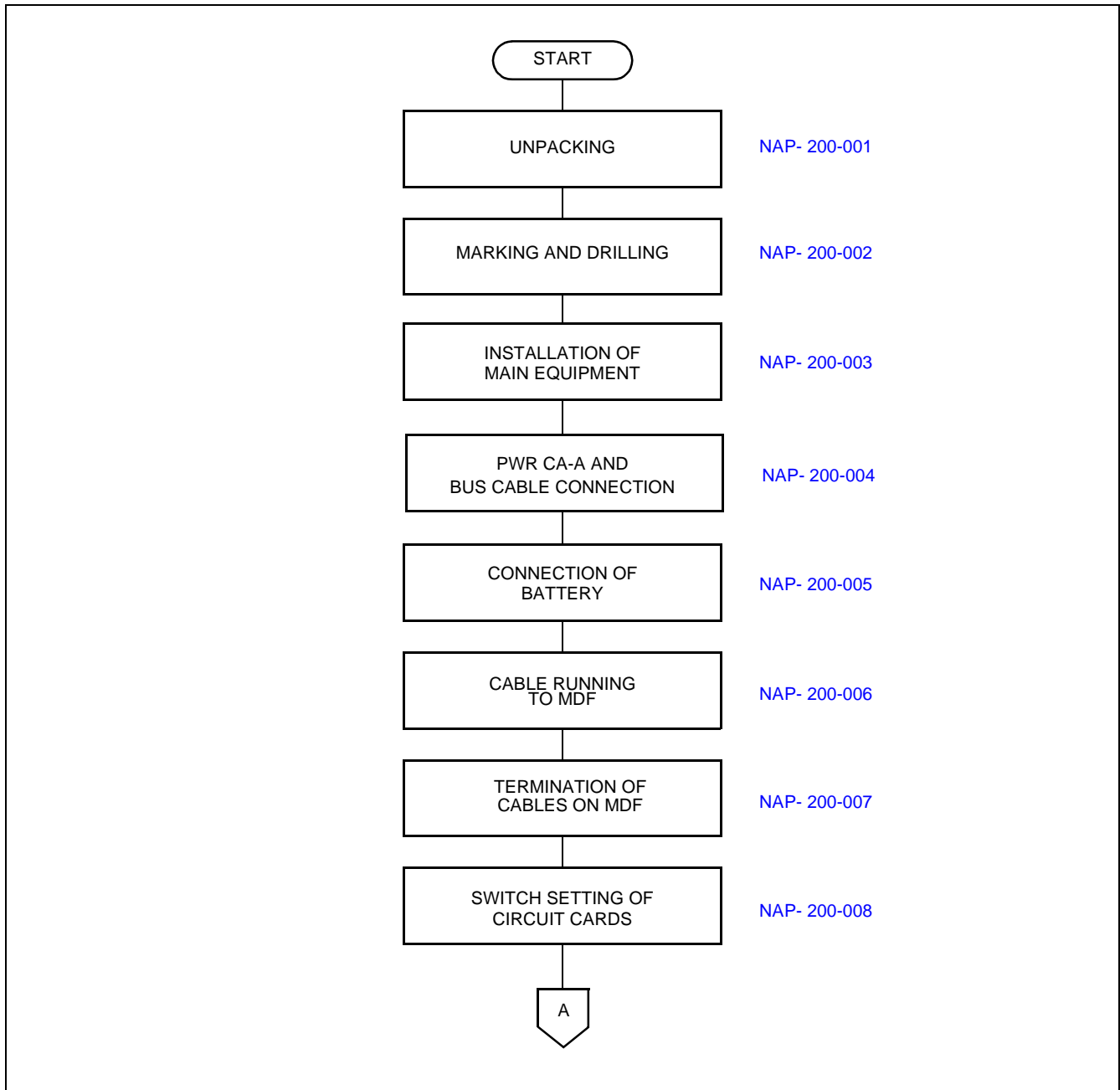
Figure 3-2   Procedure Flowchart
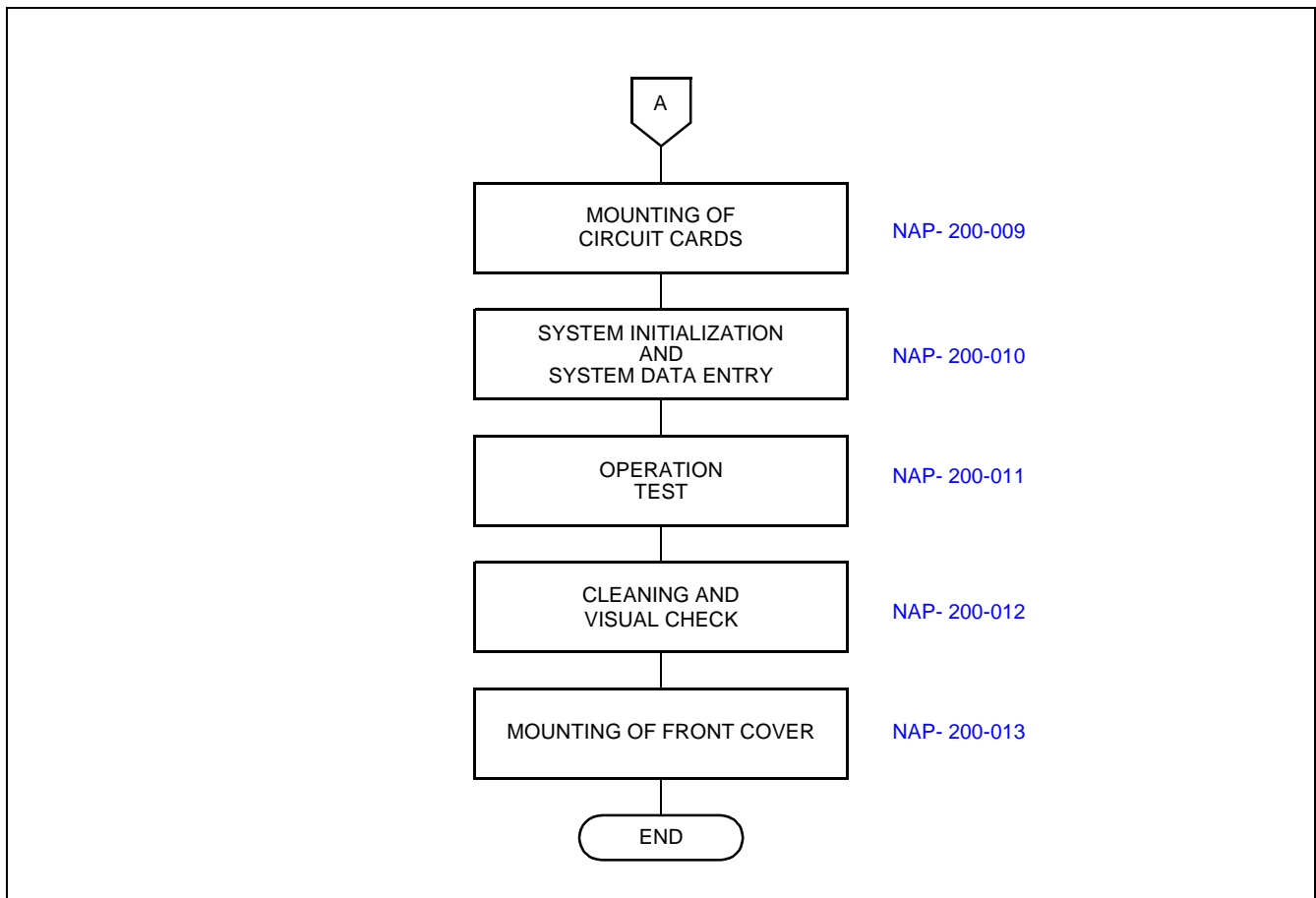
Figure 3-2 Procedure Flowchart (Continued)

The label, shown in Figure 3-3, is attached to the NAP sheet for each procedure in which circuit cards are handled. When doing such a procedure, the installer must perform the procedure with caution, to prevent damage caused by static electricity (See Section 1.2 Static Electricity Guard in this chapter).

Figure 3-3   Static-Sensitive Caution Label

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

1. UNPACKING PROCEDURE

(1) Check the received quantity of packages containing the PBX system with the description on the shipping document.

(2) Check the packaging for external damage done by transportation and record it as necessary.

(3) Unpack the packaging (see Figure 001-1).

   • For unpacking the packages containing circuit cards, a grounded wrist strap should be worn.

(4) Check the quantity of equipment and materials unpacked with the shipping document.

(5) Perform visual inspection, checking for the following items:

   • Modules ——————————— Overall distortion

                          ———— Scratches and dents on the surface

                          ———— Scratches and cracks on PIM Backplane

                          ———— Broken or bent pins on PIM Backplane

   • Covers ——————————— Scratches and dents

   • Circuit Cards——————— Overall distortion

                          ———— Scratches and cracks

                          ———— Loss or damage of parts on circuit cards

   • Attendant Console——— Scratches and cracks on the keyboard

                          ———— Overall distortion

                          ———— Damage to keys and lamps
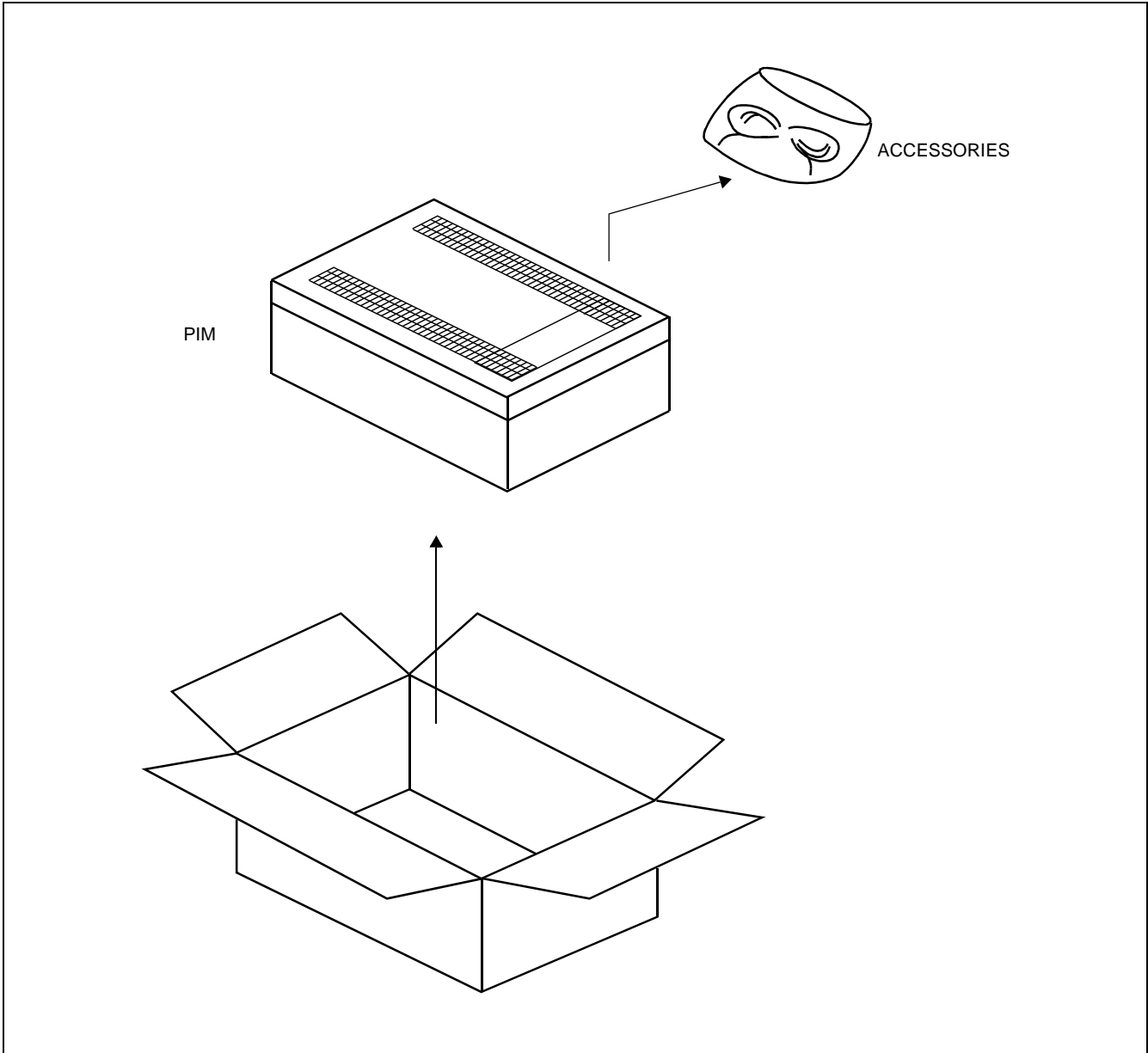
Figure 001-1   Unpacking Main Equipment

1. CONFIRMING EQUIPMENT LAYOUT

Install the equipment in an area that provides adequate ventilation and is easily accessible to service personnel.

2. MARKING

Locate and mark the wall mounting points as shown in Figure 002-1.
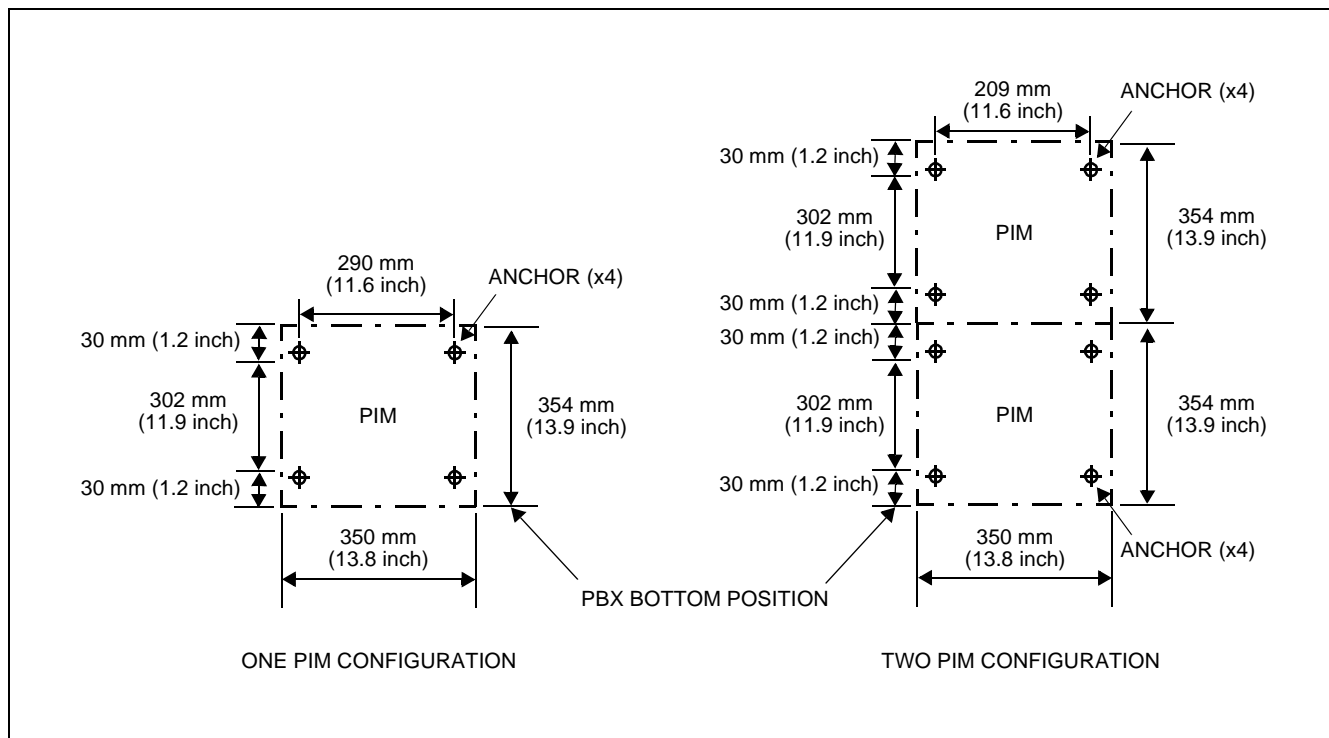
Figure 002-1 Wall Mounting Points

3. DRILLING

Install anchor bolts as shown in Figure 002-2.

(1) DRILL A HOLE IN THE CONCRETE WITH A DRILL SUITABLE FOR A PLUG BOLT A LITTLE DEEPER THAN THE PLUG BOLT LENGTH.

(2) INSERT THE ANCHOR BOLT INTO THE HOLE.

(3) PUSH ANCHOR BOLT UNTIL THE BOLT STAYS PERMANENTLY IN PLACE.

(4) TURN BOLT COUNTERCLOCKWISE AND REMOVE.
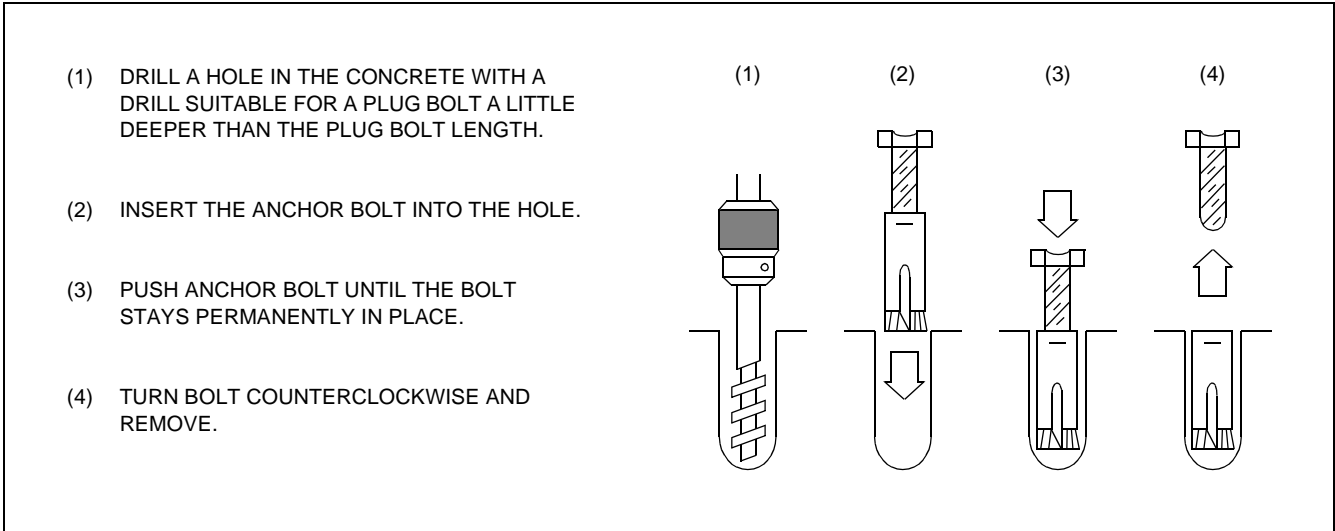
Figure 002-2 Installing Anchor Bolt

1. WALL-MOUNTING INSTALLATION

(1) When the system is two PIM configuration, connect PIMs with three bolts provided.
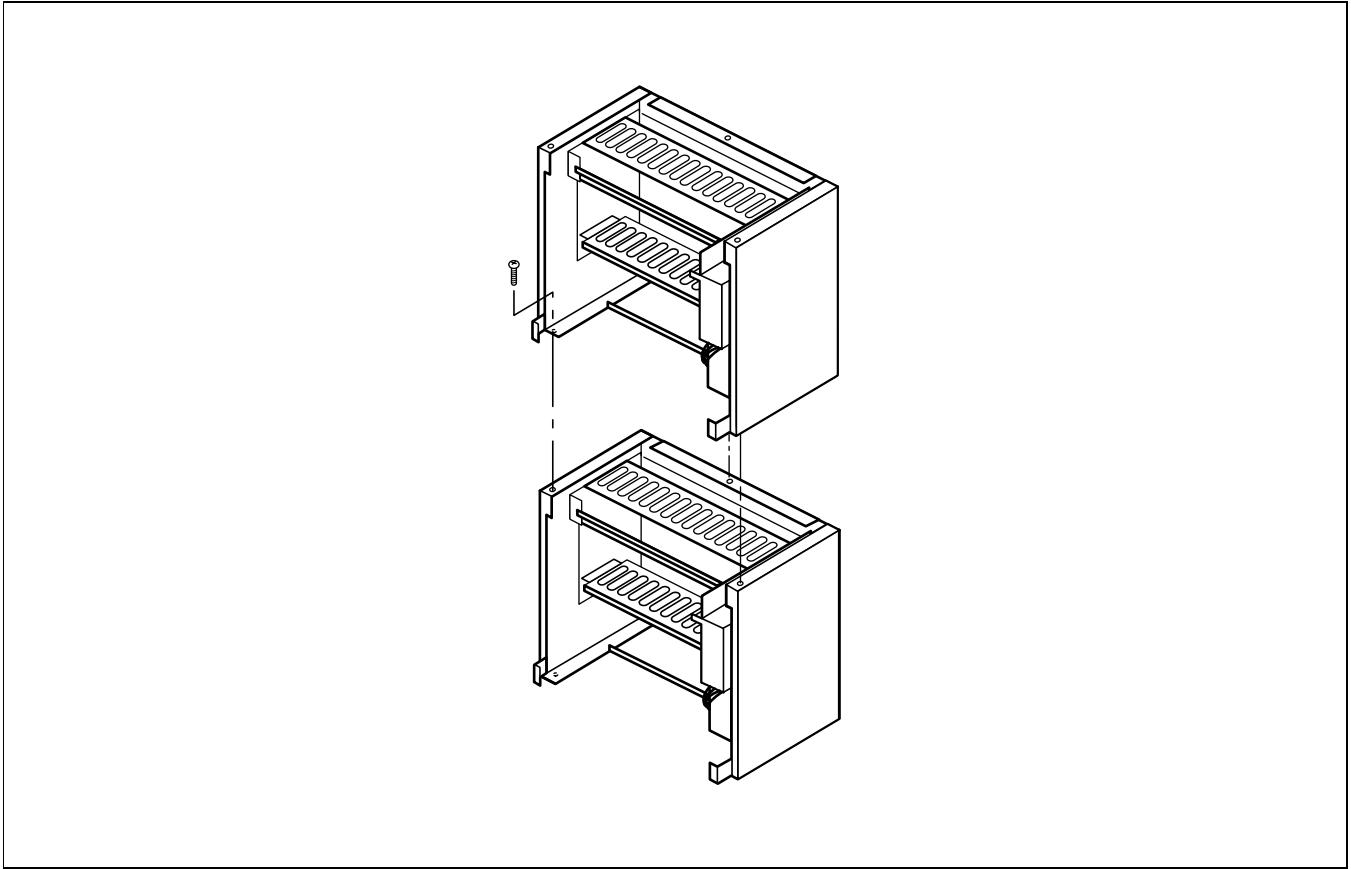
Figure 003-1 Connection of PIMs

(2) Using appropriate fasteners (locally provided; see Table 003-1) for the type of wall constructions, secure the PIM to the wall. For the wall mounting points, refer to Figure 002-1 in NAP-200-002.

Table 003-1 Recommended Fasteners

WALL TYPE	RECOMMENDED FASTENER

Plaster Board [Thickness Min. 9.6 mm (0.38 inch)]	Molly Anchor Type
	    Min. 3.5 mm (0.14 inch) DIA
	    Max. 4.5 mm (0.17 inch) DIA

Wood	Wood Type Screws
	    Min. 3.5 mm (0.14 inch) DIA
	    Max. 4.5 mm (0.17 inch) DIA

Concrete	Anchor Bolt Type Recommended 4 mm (0.16 inch) by 25 mm (0.98 inch)

Note: *The wall types are listed in recommendation order. Concrete is the most secure. Plaster board is the least secure.*

(3) After hanging PIM onto the wall, tighten each M4 machine screw using a phillips screw driver.
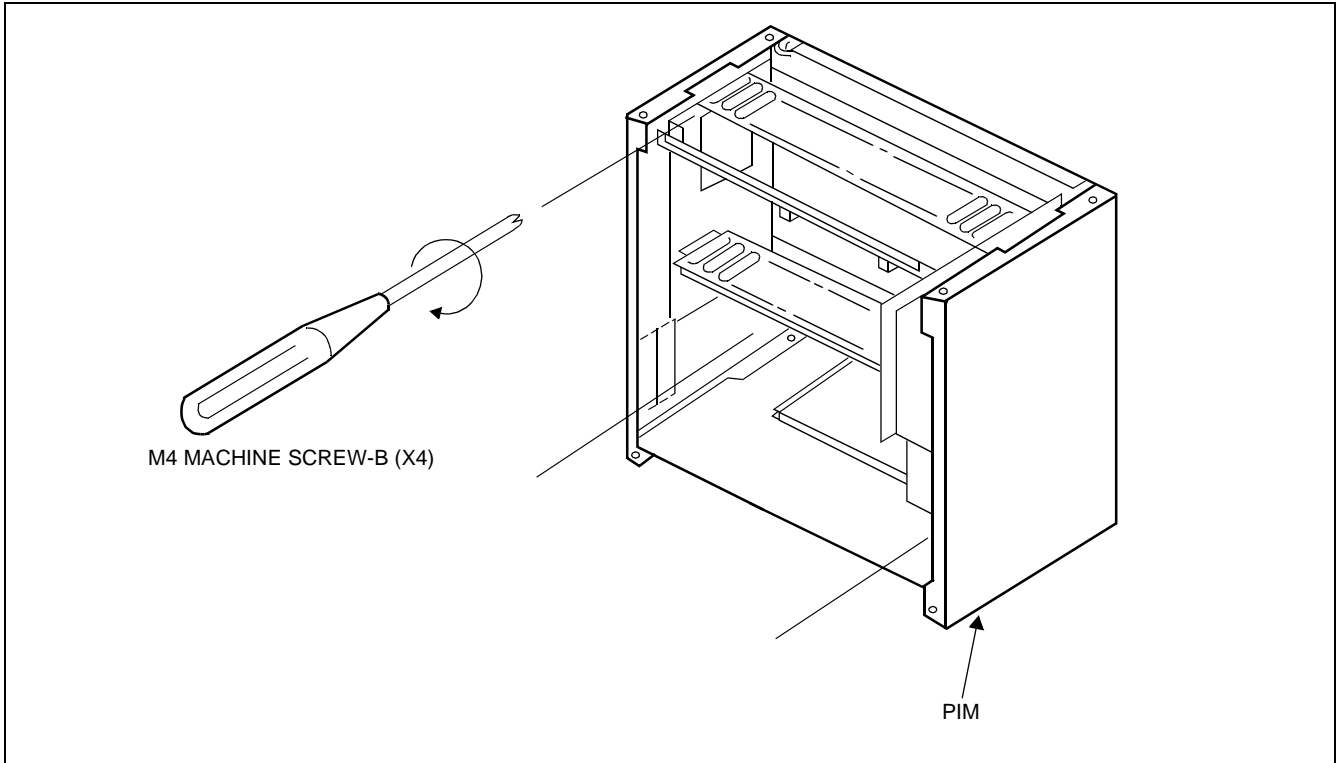
Figure 003-2   Screwing PIM to Wall

(4) Connect the TOP COVER to the upper PIM with four screws, and connect the BOTTOM COVER to the lower PIM with four screws.
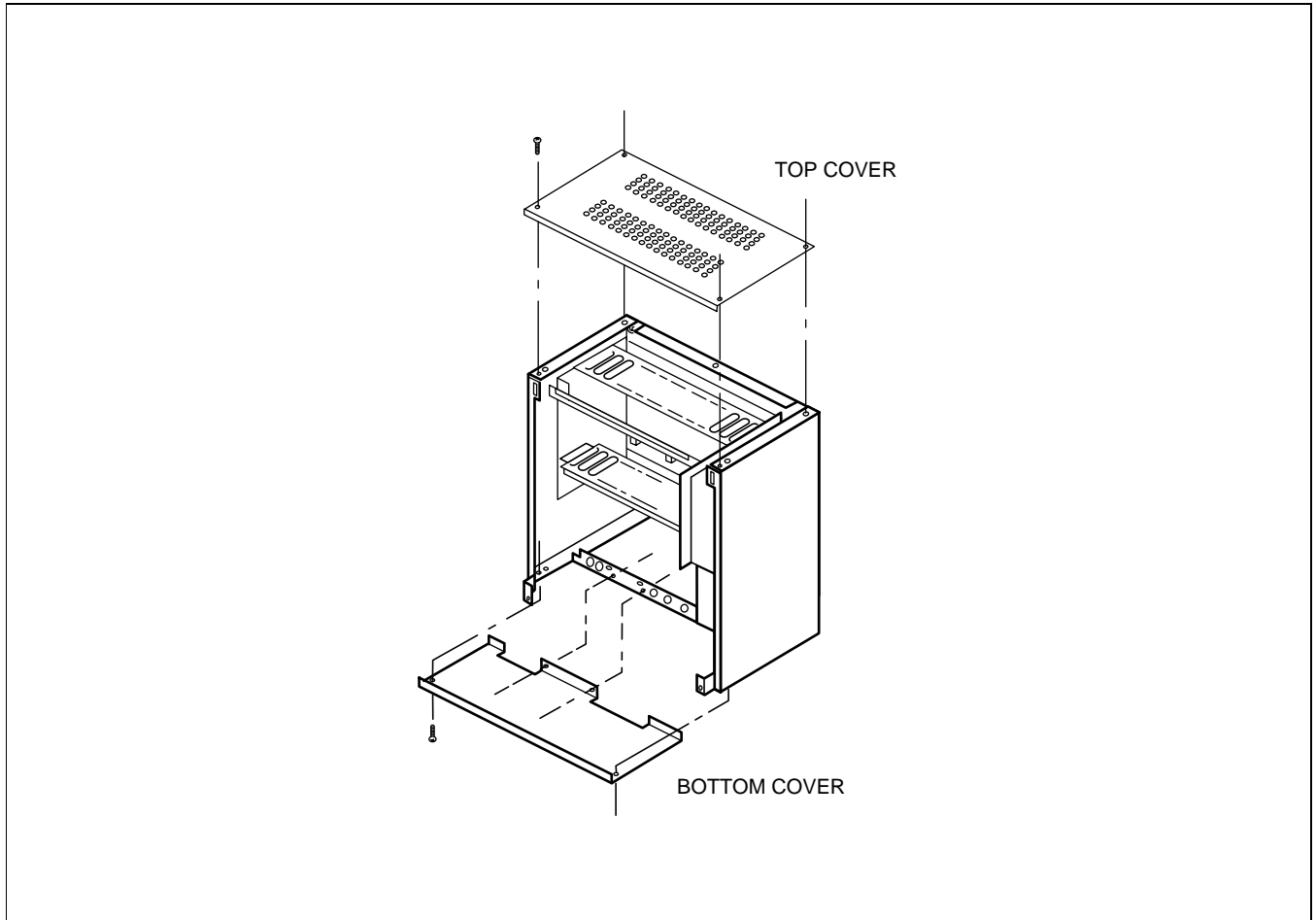
Figure 003-3 Connecting Covers

(5) Connect the AC CORD-A-U to the AC INPUT connector on the PZ-PW86/PZ-PW112, and its FG cord to the FG terminal on the chassis.

After connection of AC CORD-A-U to the AC INPUT connector, let the cord out of the PIM through the cable hole provided with bottom of the PIM.
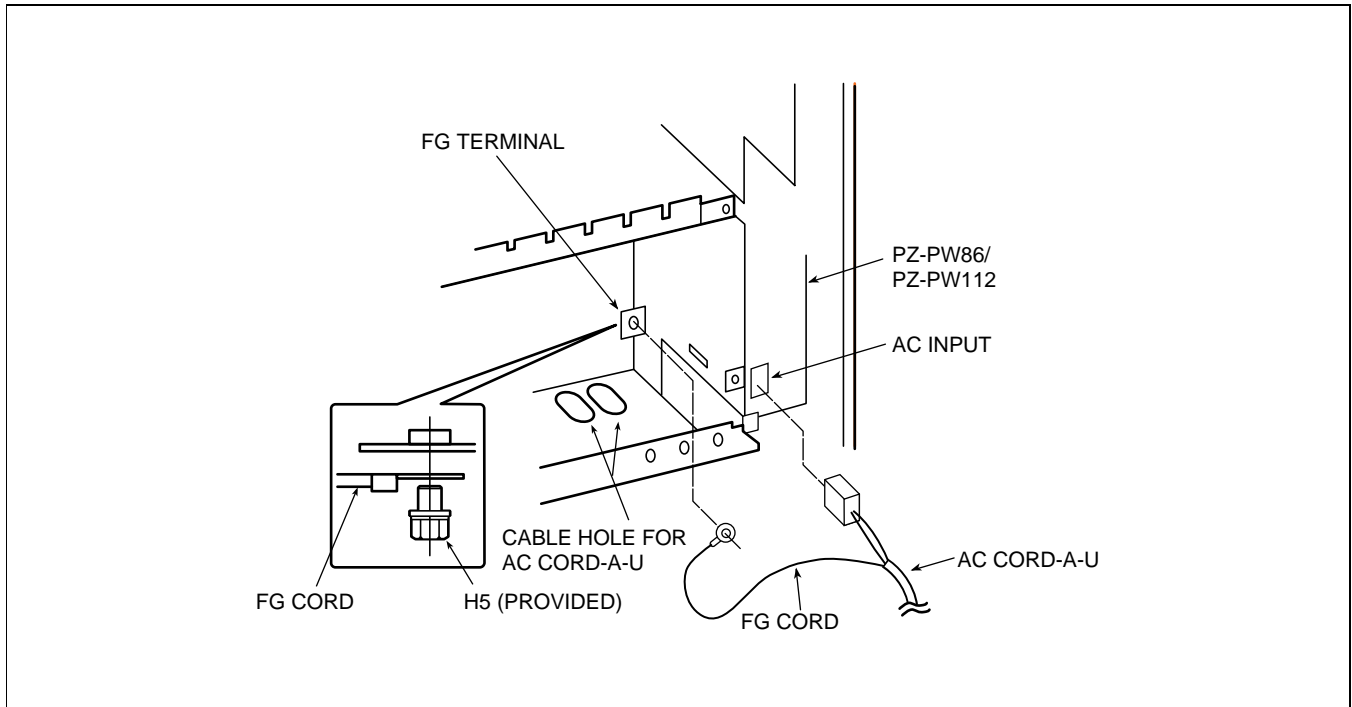
Figure 003-4 Connecting AC CORD to PIM

2. 19-INCH RACK-MOUNTING INSTALLATION

(1) When the system is two PIM configuration, connect PIMs with three bolts as shown in Figure 003-1.

(2) Before mounting the PIM, connect the TOP COVER, BOTTOM COVER and AC CORD-A-U to the PIM as shown in Figure 003-3 and Figure 003-4.

(3) Secure the 19" BRACKET (H) to the 19-inch Rack as shown in Figure 003-5 (A)

(4) Mount the PIM on the 19" BRACKET (H) as shown in Figure 003-5 (B).
Then, secure the PIM to the 19" BRACKET (H) as shown in Figure 003-5 (C).
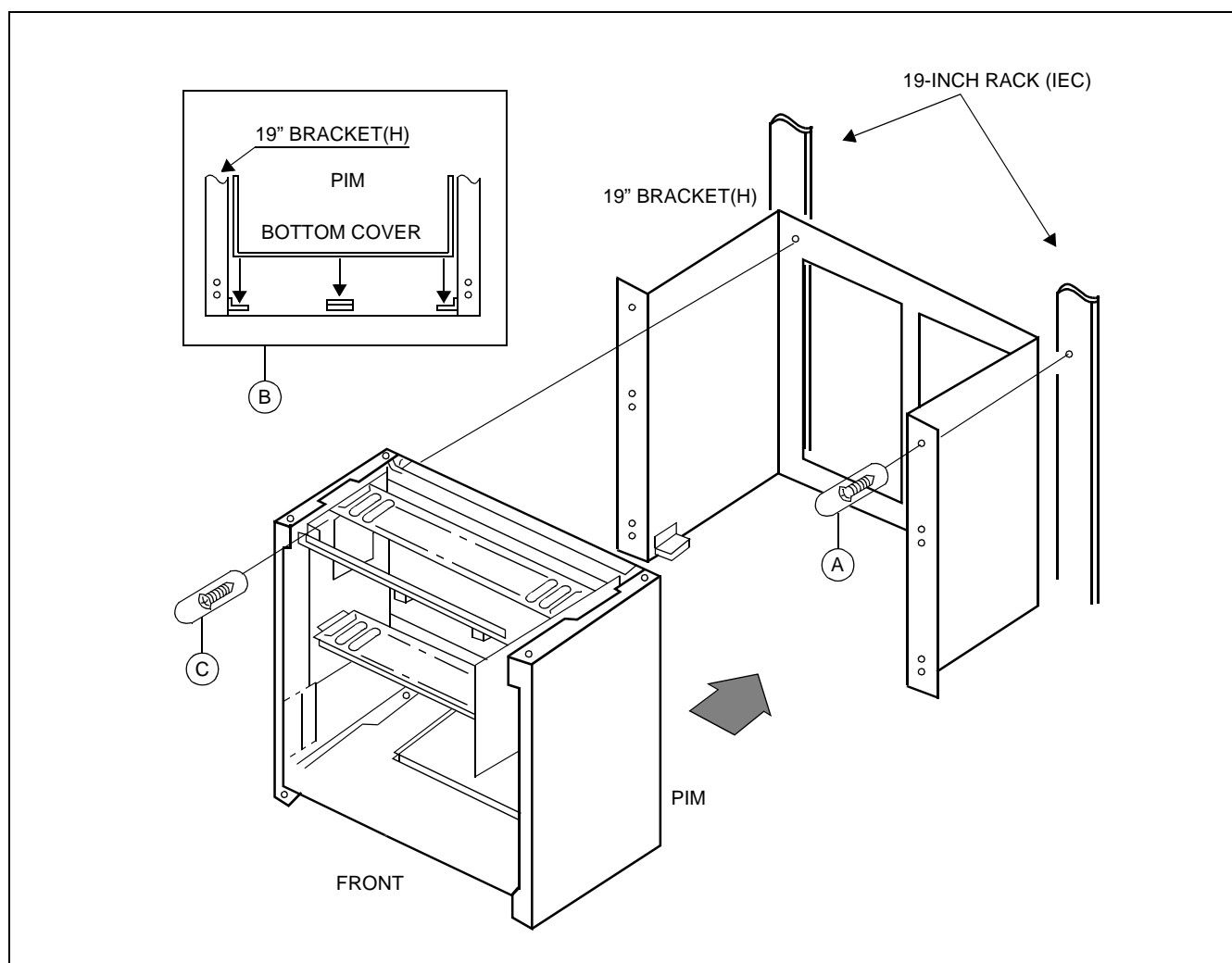
Figure 003-5 Mounting PIM to 19-Inch Rack

3. DESKTOP INSTALLATION

(1) When the system is two PIM configuration, connect PIMs with three bolts as shown in Figure 003-1.

(2) Connect the TOP COVER, BOTTOM COVER and AC CORD-A-U to the PIM as shown in Figure 003-3 and Figure 003-4.

(3) Screw the RUBBER FOOT to the PIM as shown in Figure 003-6.
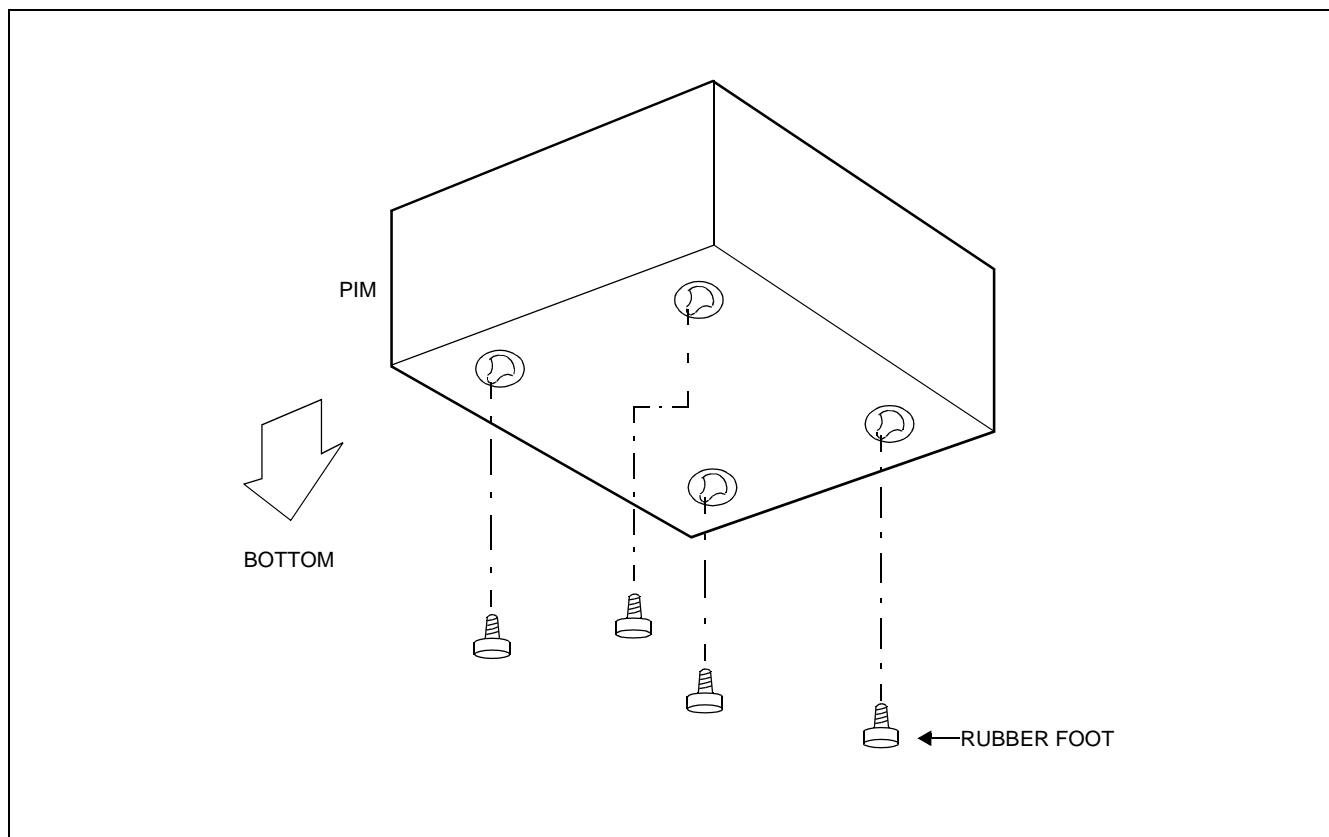
Figure 003-6 Connecting Rubber Foot to PIM

4. AC POWER CABLING

(1) The cable connections on the PZ-PW86/PW112 card are shown in Figure 003-7.
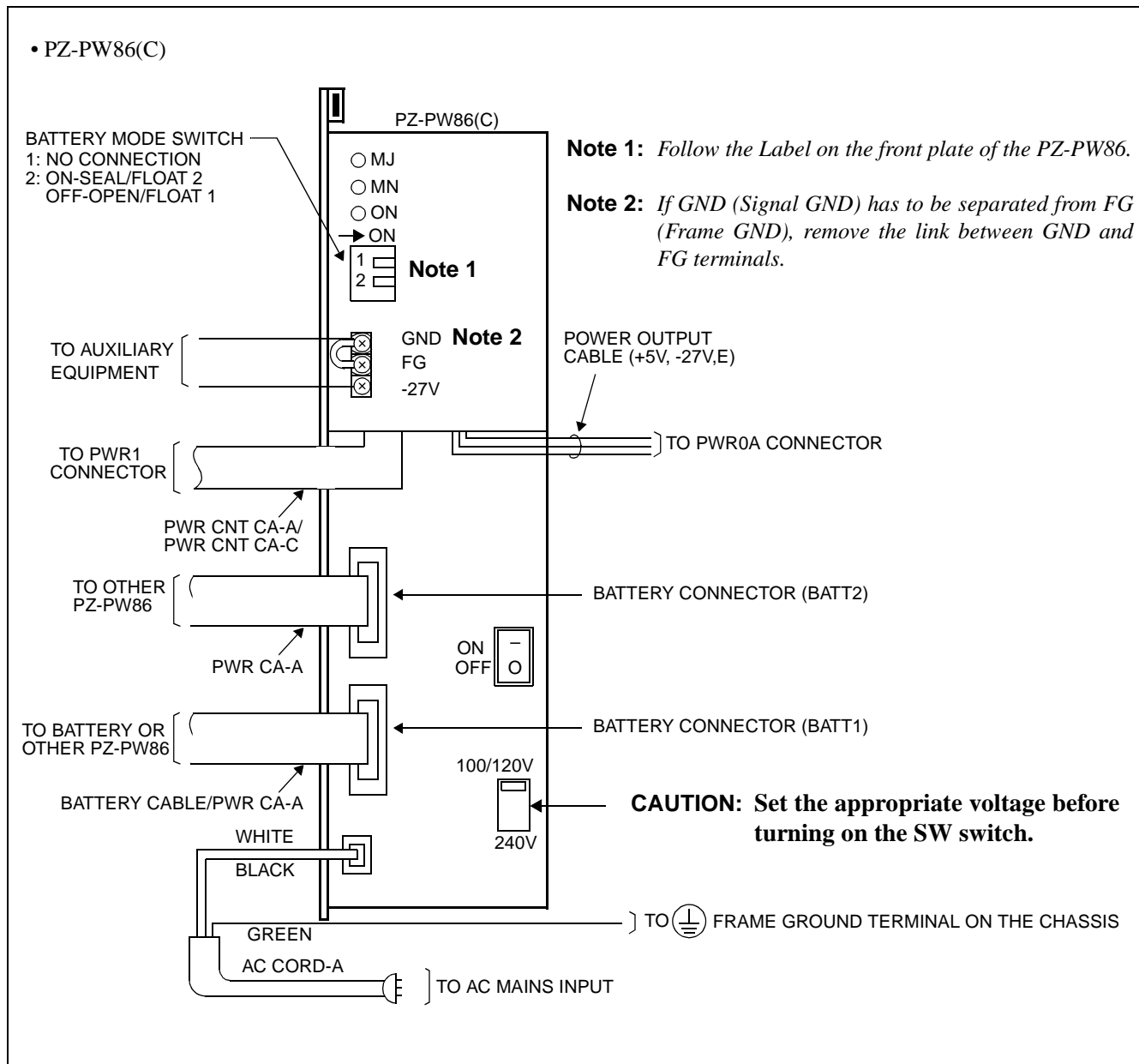
Figure 003-7 Cable Connection on PZ-PW86/PW112
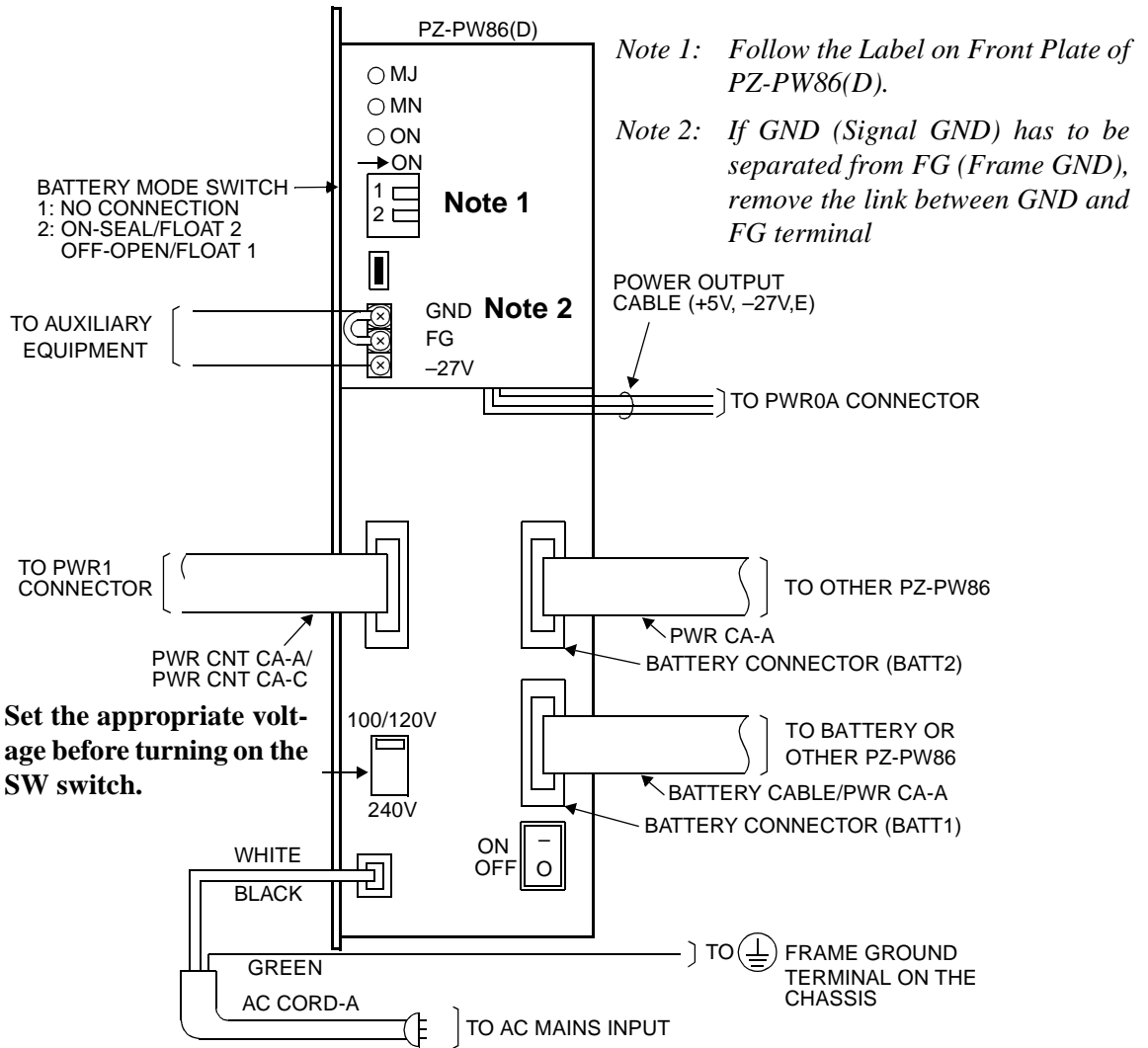
Figure 003-7 Cable Connection on PZ-PW86/PW112 (Continued)

• PZ-PW112
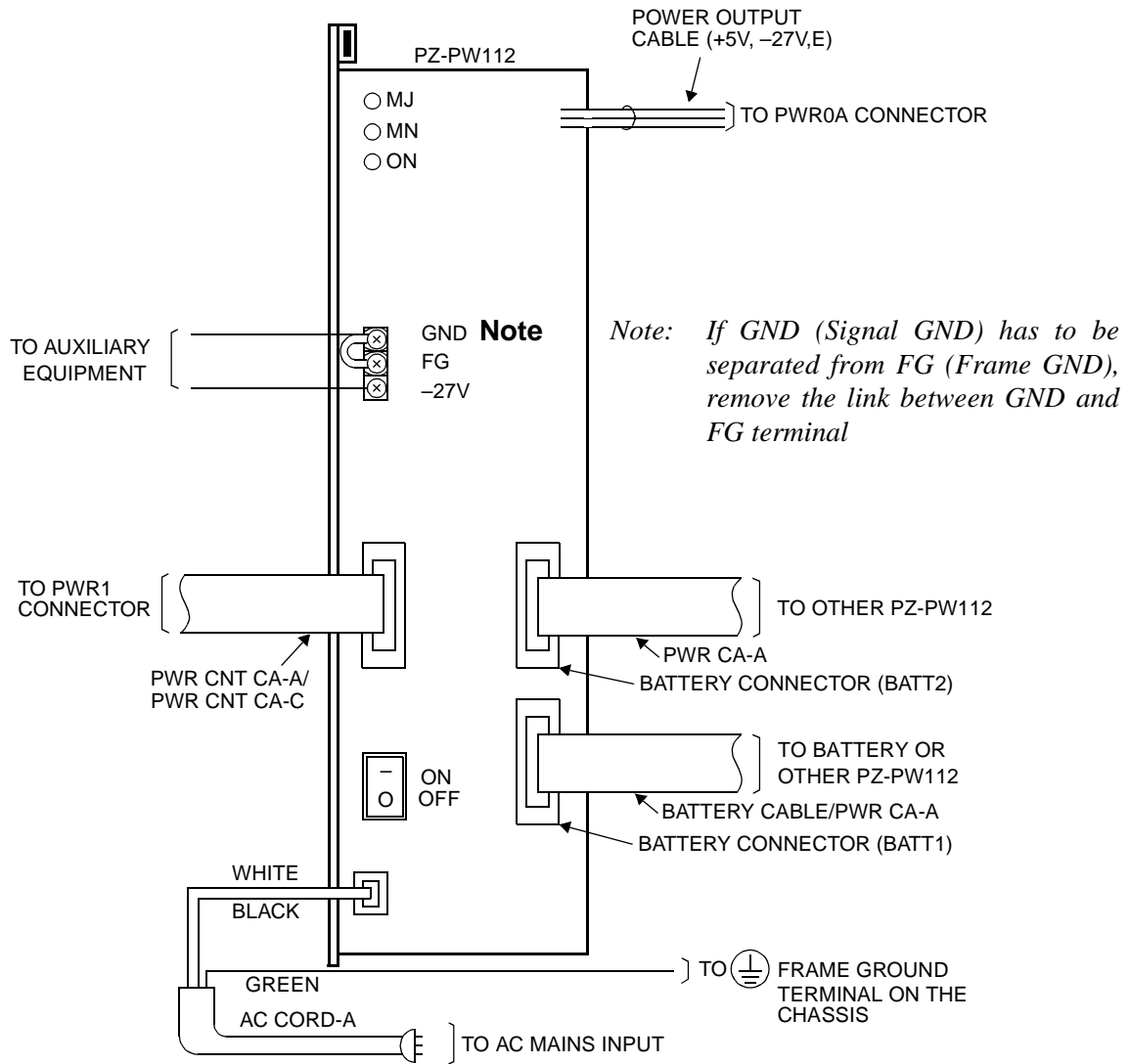
Figure 003-7 Cable Connection on PZ-PW86/PW112 (Continued)

(2) When the system is two PIM configuration, unplug the PWR CNT CA-A and connect the PWR CNT CA-C as shown in Figure 003-8.
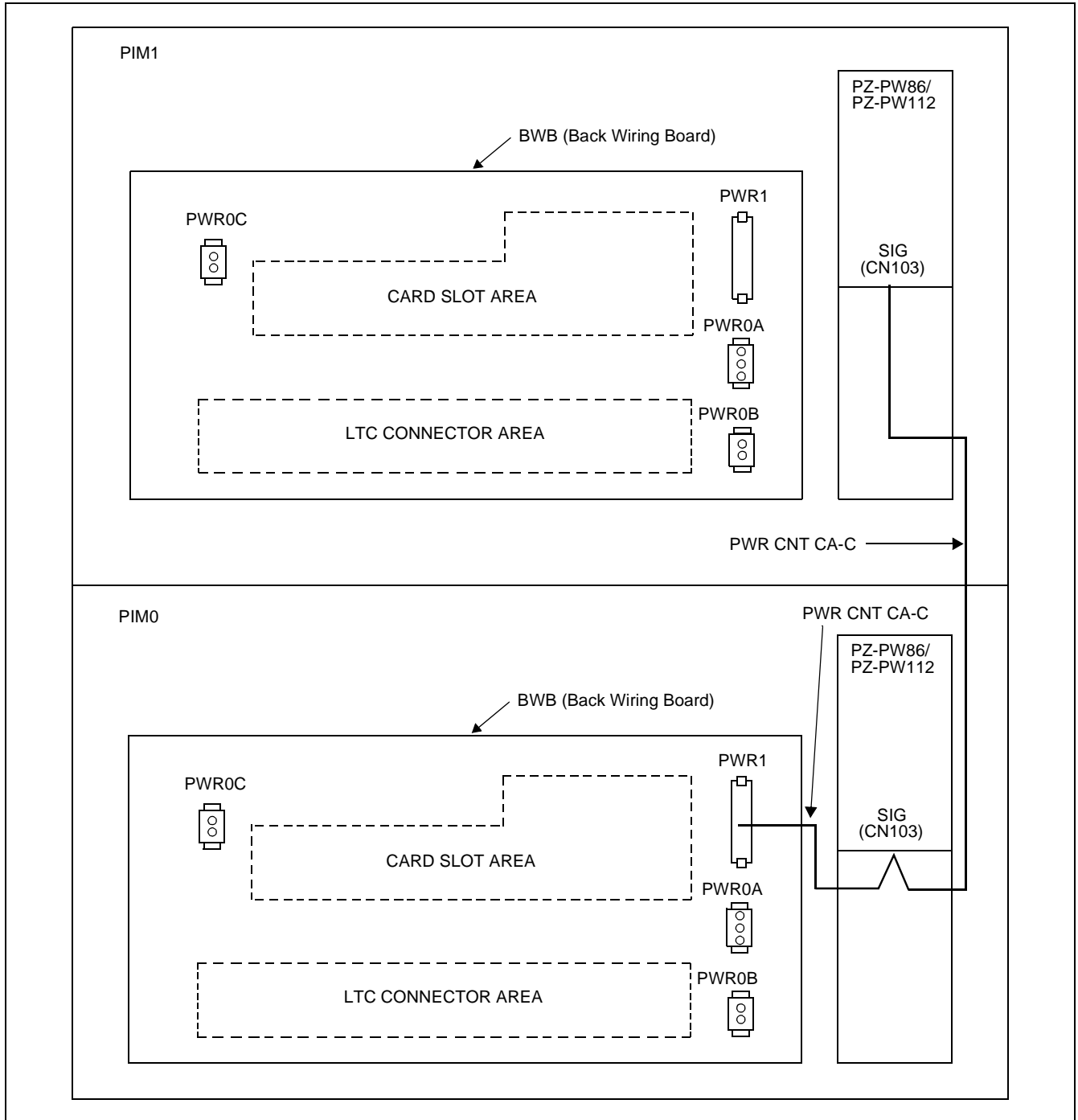
Figure 003-8 PWR CNT CA-C Cable Connection between PIMs

(3) Bring the AC CORD-A-U out of the PIM through the cable hole on the bottom of the lower PIM, and plug it into a commercial AC outlet.
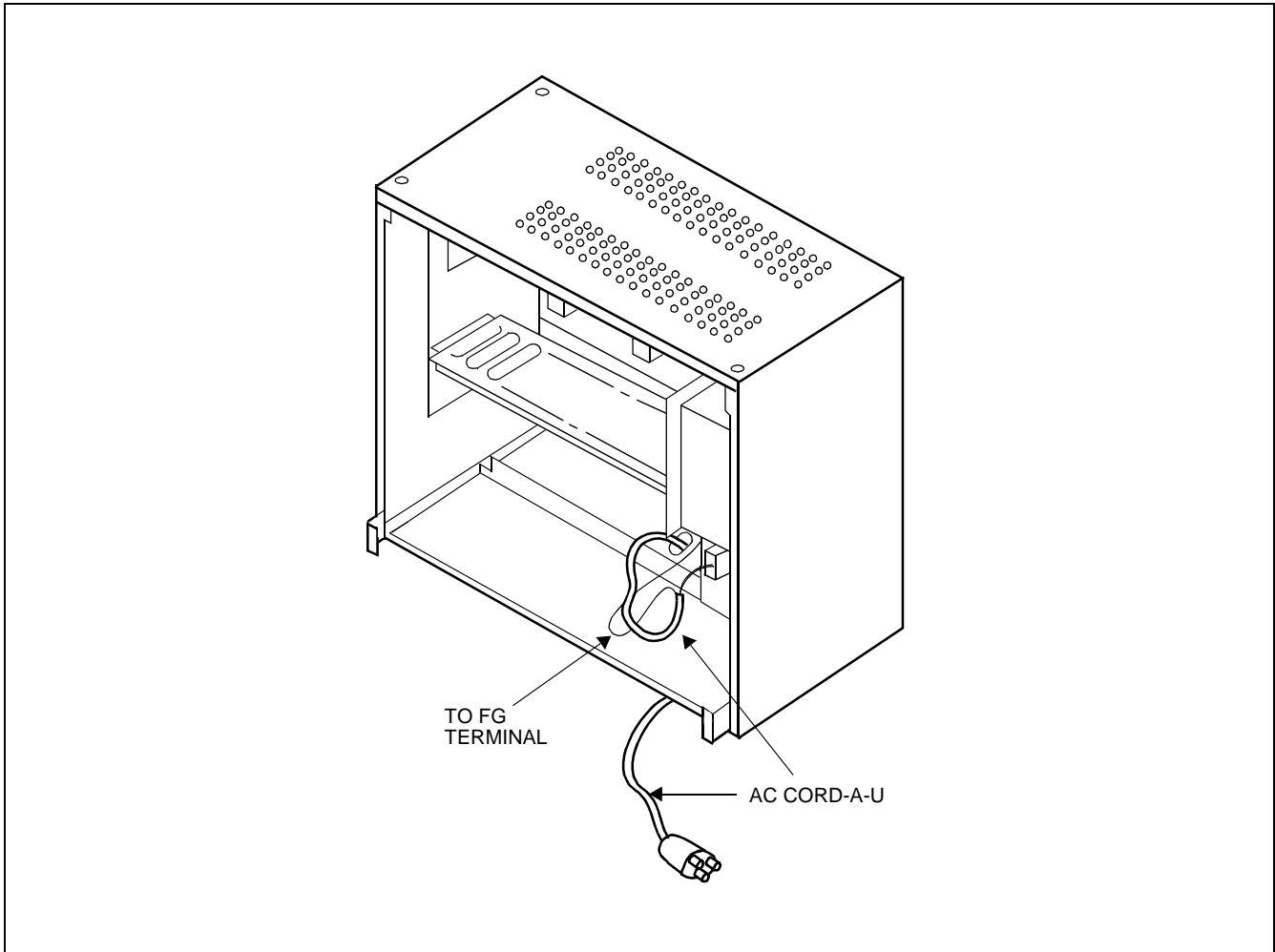
Figure 003-9 AC Power Cable Wiring

(1) When the system is two PIM configuration, connect the PZ-PW86/PZ-PW112 Cards to each other using PWR CA-A cables, as shown in Figure 004-1.

Note: *For details of battery connection, see NAP- 200-004.*
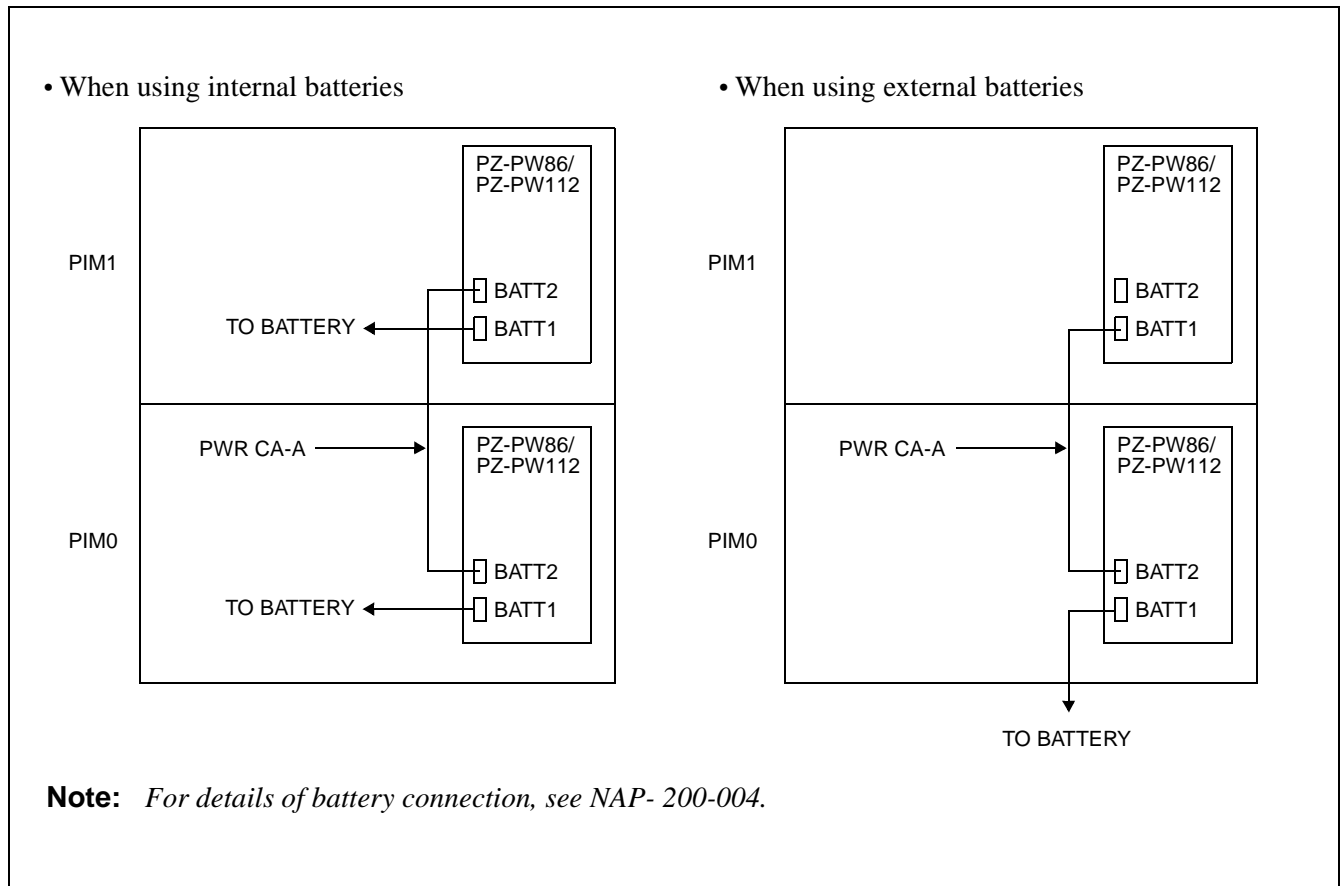
Figure 004-1 Connection of PWR CA-A Cables

(2) Mount the BS00 Card in the BUS slot of PIM0. Also, mount the BS01 Card in the BUS slot of PIM1. When the system is a single PIM configuration, neither PN-BS00 nor PN-BS01 is needed.

(3) Connect the BUS cards using BUS cable (48-TW-0.7 CONN CA).
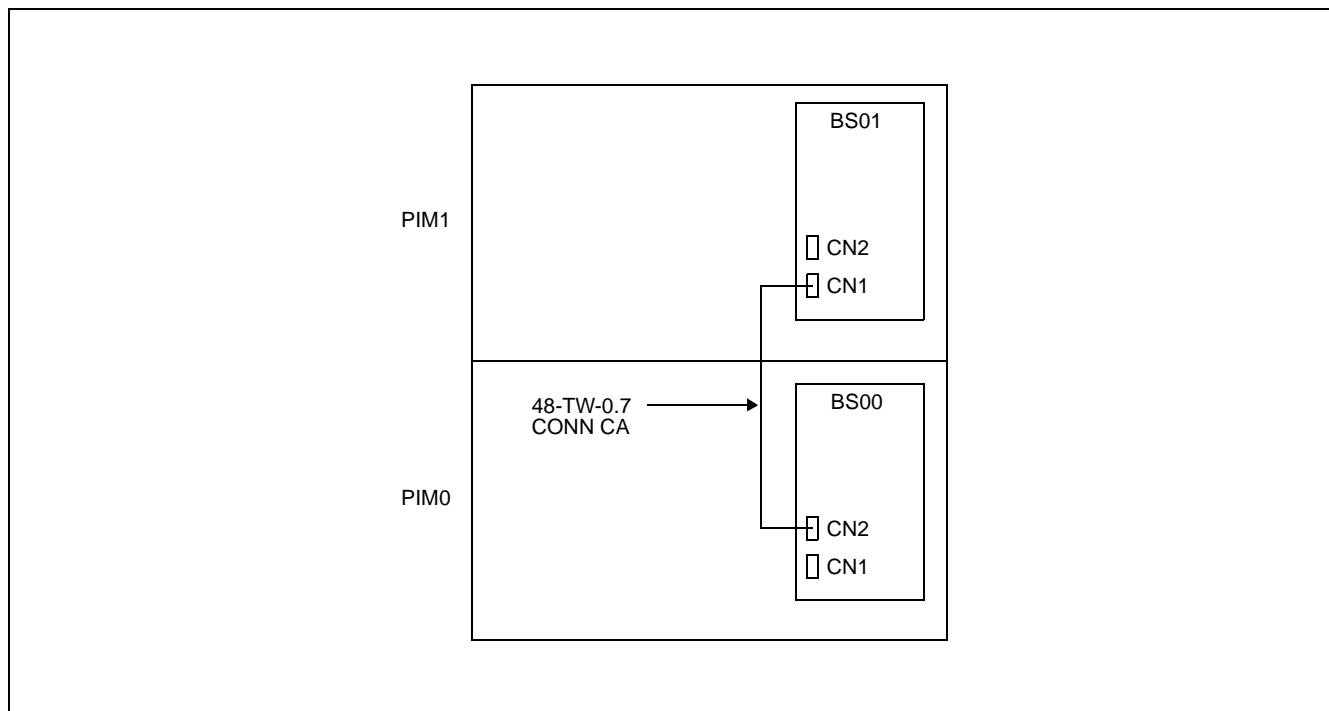
Figure 004-2 Mounting BUS Cards

1. BATTERY CONNECTION

CAUTION 1: 24V batteries must be used in this system.

CAUTION 2: If battery terminals (+, –) contact with the module under connecting the battery cable to the PZ-PW86/PW112 card, the PZ-PW86/PW112 card or the BWB may be broken. Therefore, the installer must perform work in accordance with the following steps when mounting or removing the batteries.

- When mounting batteries:

(1) Connect the battery cable to the batteries.

(2) Mount the batteries into the appointed position of the PIM.

(3) Connect the battery cable to the PZ-PW86/PW112 card.

- When removing batteries:

(1) Disconnect the battery cable from the PZ-PW86/PW112 card.

(2) Remove the batteries from the PIM.

Standard Battery

Internal Battery   :   GS type PX 12026

Optional Battery

External Battery   :   YUASA   type   NPH-3.2-12
                                 MATUSHITA   type   LCR-12V-3.4NE

These batteries will provide 30 minutes of battery backup. They will not fit within the NEAX1000 PIM.

CAUTION 3: Battery Replacement Table and Battery Warnings

The label, which shows battery replacement table and battery warnings, is attached to the reverse side of Front Cover for PIM. During the battery installation process, always observe the warning statements. When replacing batteries, adhere to the battery replacement table to increase battery life and to insure safe operation. See Figure 005-1.

PIM

LABEL

FRONT COVER

BATTERY REPLACEMENT TABLE

INSTALLATION DATE: ,   .

AMBIENT TEMPERATURE	25°C (77° F)	25°C~30°C (77° ~86° F)	30°C~40°C (86° ~104° F)
REPLACEMENT INTERVAL	2.5~3.0 YEARS	2.0~2.5 YEARS	1.5~2.0 YEARS

• ELECTROLYTE LEAKAGE OR OTHER HAZARDS MAY RESULT IF THE BATTERY IS NOT REPLACED IN ACCORDANCE WITH THE SPECIFIED INTERVALS.

CAUTION TO PREVENT INJURY AND SKIN BURN, PAY ATTENTION TO THE FOLLOWING.
• DO NOT STRIKE A MATCH OR CAUSE A SPARK IN VICINITY OF BATTERY.
• PLACE THE EQUIPMENT IN A WELL VENTILATED AREA.
• DO NOT SHORT.
• REPLACE BATTERY ONLY AFTER BATTERY GASES HAVE BEEN DISPERSED.

Figure 005-1   Battery Replacement Information

1.1 Internal Battery Connection

(1) Mount the battery unit (24V DC, 2.6 AH) into the PIM (standard with system) as shown in Figure 005-2.
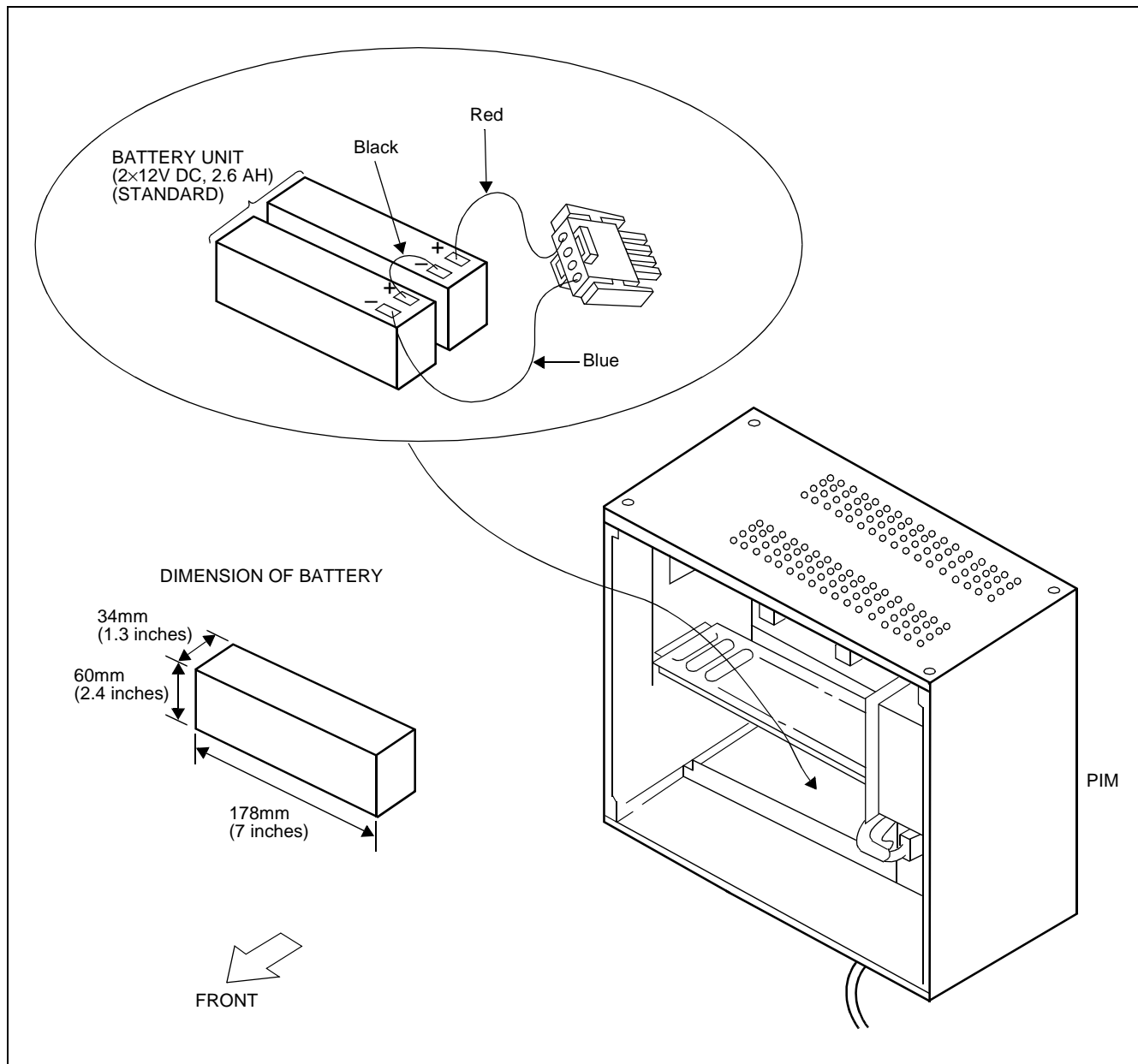
Figure 005-2 Internal Battery Mounting

(2) Plug the battery cable connector into the BATT1 connector on the PZ-PW86/PZ-PW112 as shown in Figure 005-3.

(3) Secure the batteries and battery cable using tie wraps.
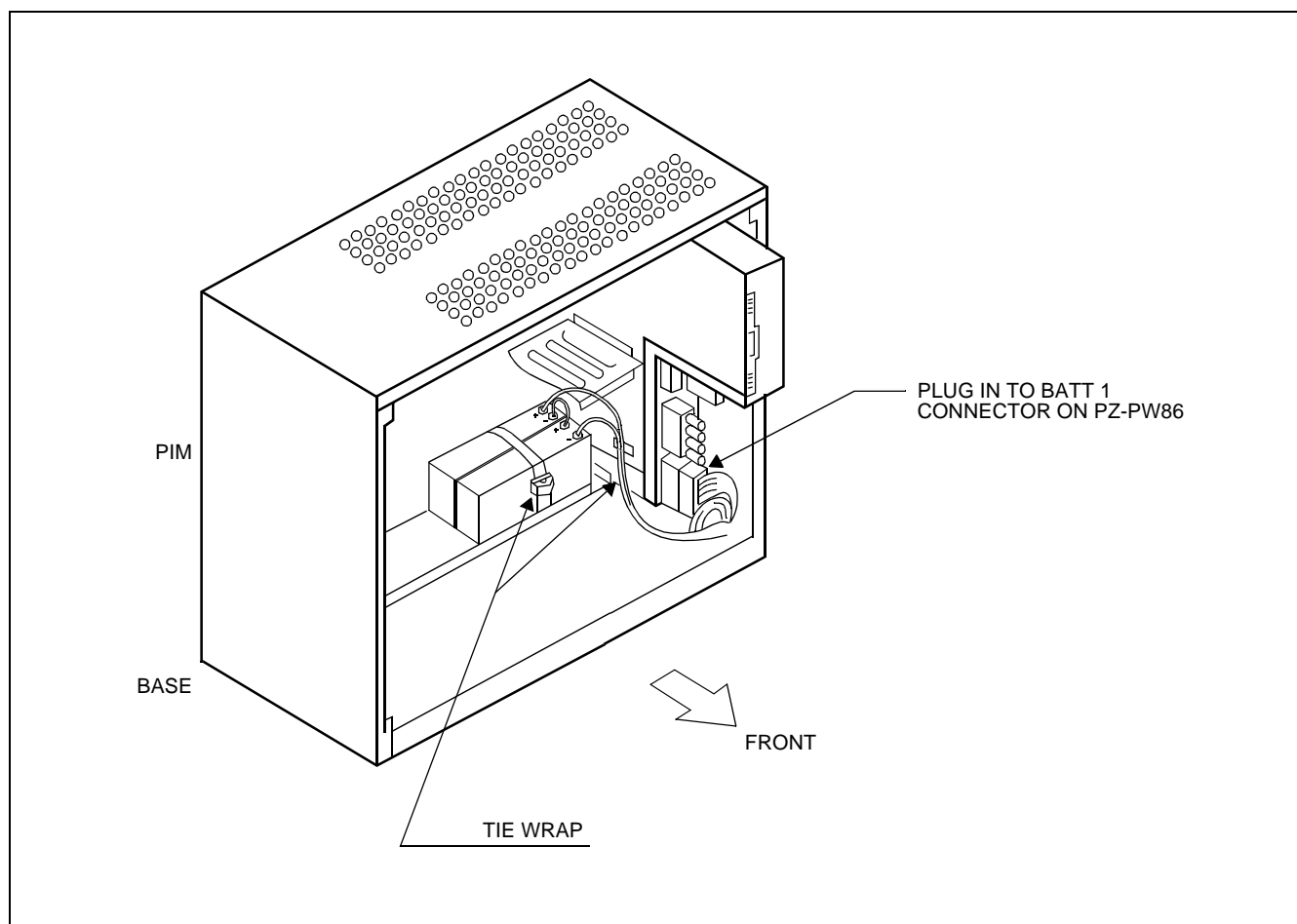
Figure 005-3 Internal Battery Connection

1. MDF CABLE

To facilitate the termination of the 25 pair cables (MDF cables) from the system to the MDF, the length of each cable to be used should be predetermined according to the distance between the MDF and the system. Each cable should be labeled at both ends using a cable number or cable designation as shown in Figure 006-1.

CHAMP CONNECTOR

TO PIM

TWISTED 25 PAIR CABLES

TO MDF

FROM		CABLE NUMBER	TO	CABLE DESTINATION
MODULE	CONNECTION			
PIM0	LTC0	1	MDF	0 LTC0
	LTC1	2		0 LTC1
PIM1	LTC0	3	MDF	1 LTC0
	LTC1	4		1 LTC1
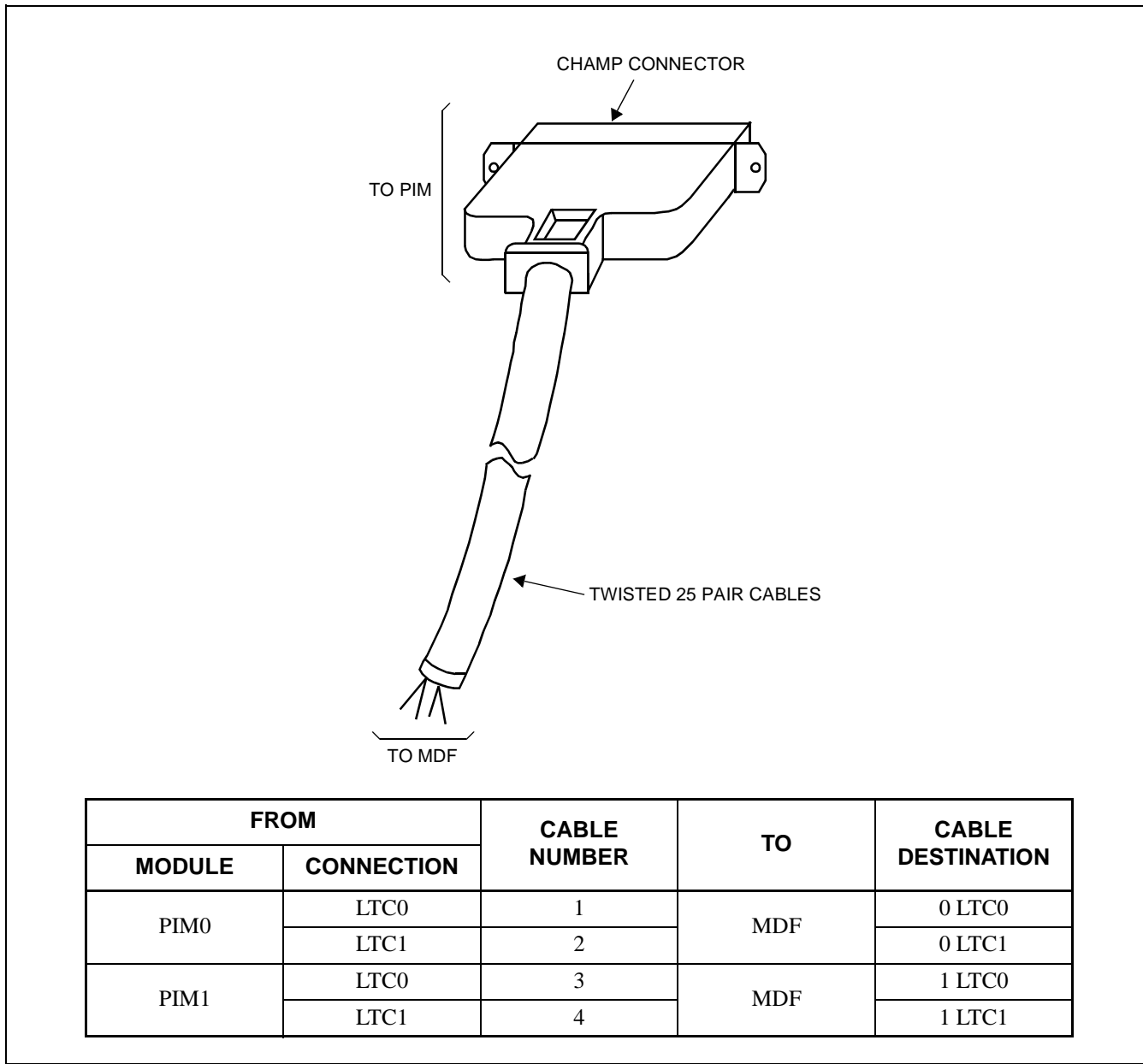
Figure 006-1   MDF Cable

2. CABLE RUNNING TO EXTERNAL MDF

(1) Bring the MDF cable up to the Main Equipment through the cable hole(s) of the bottom cover.

(2) Connect the champ connector of each MDF cable to an LTC connector located on a PIM using the screws provided, as shown in Figure 006-2.

(3) Pare the sheath of each MDF cable and secure the shield to the bottom of the PIM using tie wraps, as shown in Figure 006-2.
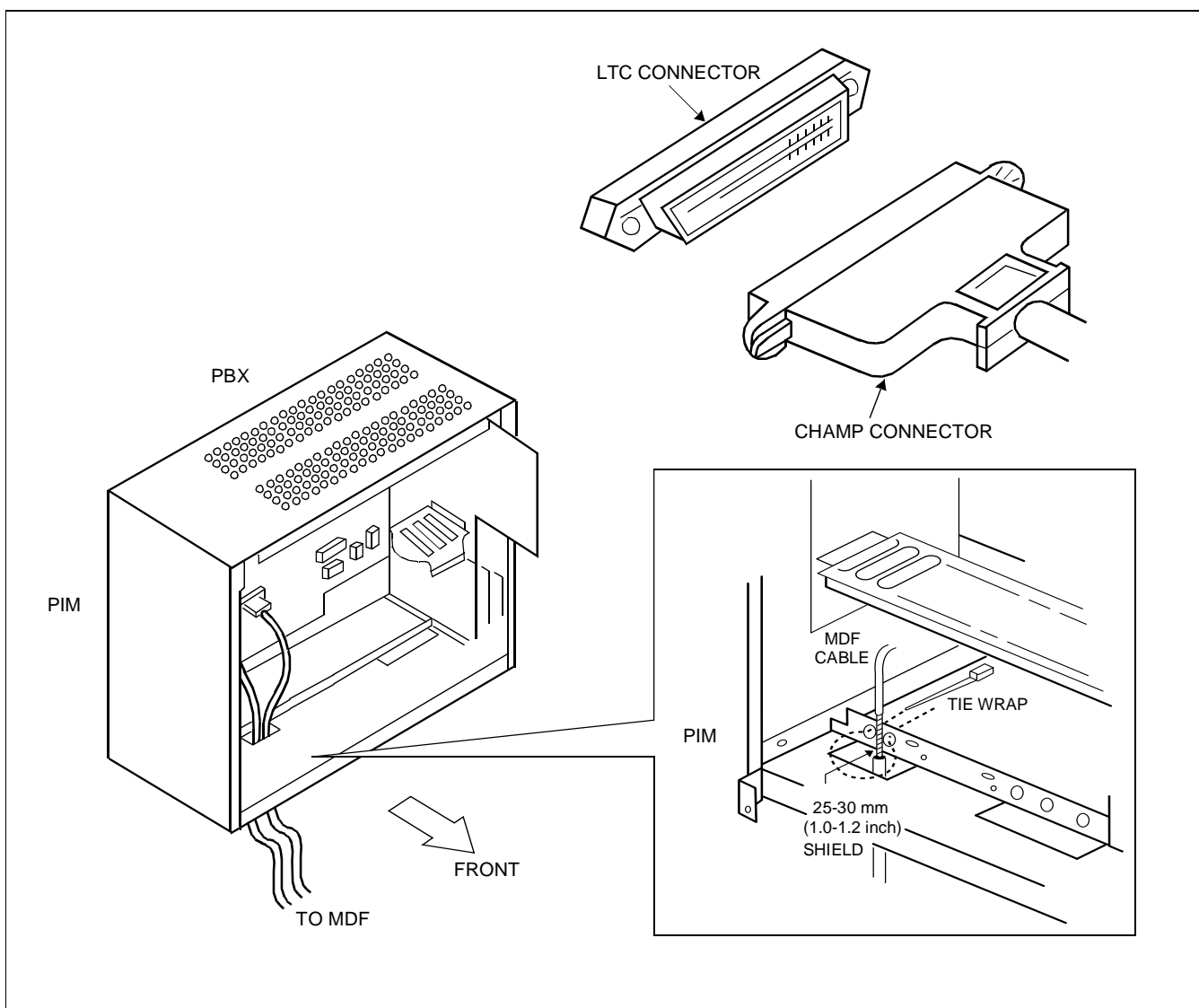
Figure 006-2   Cable Running to External MDF

1. CABLE CONNECTION TO MDF

(1) Connect the cables to the MDF referring to Figure 007-1 and Table 007-1.
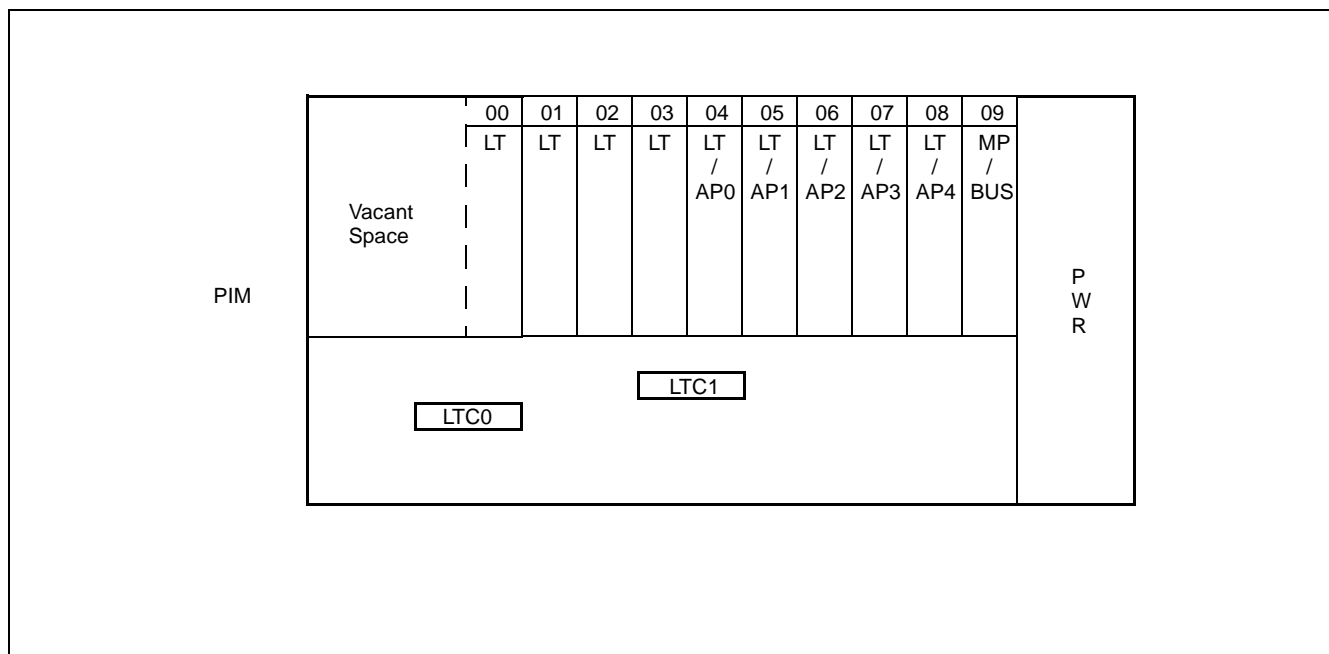
Figure 007-1 Card Slots and LTC Connectors Location

Table 007-1 LTC Connector Accommodation

LTC CONNECTOR	CARD SLOT NUMBER	REMARKS
LTC0	LT01 ~ LT03	
LTC1	LT04/AP0 ~ LT08/AP4	When AD8 is mounted in LT00, pins 25 and 50, bring out leads for AD8 internal modem connection.

(2) Figure 007-2 shows the relationship between each Line Equipment Number (LEN) and each Card Slot Number (LT Number).

	Note 1					Note 2		Note 3		
	0127	0071	0079	0087	0095		0103		0111	
	0126	0070	0078	0086	0094		0102		0110	
	0125	0069	0077	0085	0093		0101		0109	
	0124	0068	0076	0084	0092		0100		0108	LEN
PIM 1	0123	0067	0075	0083	0091	0095	0099	0103	0107	(LINE EQUIPMENT NUMBER)
	0122	0066	0074	0082	0090	0094	0098	0102	0106	
	0121	0065	0073	0081	0089	0093	0097	0101	0105	
	0120	0064	0072	0080	0088	0092	0096	0100	0104	
	(LT00)	(LT01)	(LT02)	(LT03)	(LT04)	(LT05)	(LT06)	(LT07)	(LT08)	CARD SLOT NUMBER
	0063	0007	0015	0023	0031		0039		0047	
	0062	0006	0014	0022	0030		0038		0046	
	0061	0005	0013	0021	0029		0037		0045	
	0060	0004	0012	0020	0028		0036		0044	LEN
PIM 0	0059	0003	0011	0019	0027	0031	0035	0039	0043	(LINE EQUIPMENT NUMBER)
	0058	0002	0010	0018	0026	0030	0034	0038	0042	
	0057	0001	0009	0017	0025	0029	0033	0037	0041	
	0056	0000	0008	0016	0024	0028	0032	0036	0040	
	(LT00)	(LT01)	(LT02)	(LT03)	(LT04)	(LT05)	(LT06)	(LT07)	(LT08)	CARD SLOT NUMBER
	Note 1					Note 2		Note 3		

Note 1: *Do not mount line/trunk circuit card with cabling in this slot; this slot has no connection to the MDF via the backplane (LTC cables).*

Note 2: *When an 8-port line/trunk card, which requires cabling to MDF, is mounted in Slot 04, Slot 05 must be left vacant or mounted with circuit cards[1] that do not interfere with the 8-port card mounted in LT04.*

Note 3: *When an 8-port line/trunk card, which requires cabling to MDF is mounted in SLot 06, Slot 07 must be left vacant or mounted with circuit cards[1] that do not interfere with the 8-port card mounted in LT06.*

Note 4: *When using internal DTMF Receiver (4RST) on MP card, assign Card No. E200 to LEN No. 0124.*

Note 5: *If single-line cards are mounted in LT or LT/AP slots, an external ring generator must be connected to PWR0B. The system power supply does not provide these voltages. It is recommended that the APR adapter be used in dual-port mode to provide for single-line devices.*

[1] When an 8-port card is mounted in Slot 04/06, Slot 05/07 can only be mounted with the following cards:

SPN-AP00	SPN-AP01	SPN-ME00	SPN-SC01
SPN-SC02	SPN-4RSTB	SPN-4RSTB-911	SPN-4RSTC
SPN-CK00	SPN-CC00	PN-M03	SPN-SC03 (CSH)/(ICH)

Figure 007-2 Location of Each LEN

(3) shows the LTC connector pin arrangement.

Figure 007-3 LTC Connector Pin Arrangement

• PIM1

LTC0

26		1		LEN0064
27		2		0065
28		3		0066
29		4		0067
30		5		0068
31		6		0069
32		7		0070
33		8		0071
34		9		0072
35		10		0073
36		11		0074
37		12		0075
38		13		0076
39		14		0077
40		15		0078
41		16		0079
42		17		0080
43		18		0081
44		19		0082
45		20		0083
46		21		0084
47		22		0085
48		23		0086
49		24		LEN0087
50		25		

LT01 (0064–0071)
LT02 (0072–0079)
LT03 (0080–0087)

LTC1

26		1		LEN0088
27		2		0089
28		3		0090
29		4		0091
30		5		0092
31		6		0093
32		7		0094
33		8		0095
34		9		0096
35		10		0097
36		11		0098
37		12		0099
38		13		0100
39		14		0101
40		15		0102
41		16		0103
42		17		0104
43		18		0105
44		19		0106
45		20		0107
46		21		0108
47		22		0109
48		23		0110
49		24		LEN0111
50	*	25	*	

LT04/AP0/LT05/AP1 (0088–0095)
LT06/AP2/LT07/AP3 (0096–0103)
LT08/AP4 (0104–0111)

* When AD8 is mounted in LT00, pins 25 and 50 of LTC1 bring out the AD8 internal modem leads.

Figure 007-3   LTC Connector Pin Arrangement (Continued)

2. MDF CROSS CONNECTIONS

Table 007-2 shows the cross connections on the MDF for LTC0 and LTC1.

Table 007-2 LTC0 and LTC1 MDF Cross Connection Information

PIN	RUNNING CABLE	STATION CABLE	SLOTS	CO (4COT)	CO (8COT)	2-WIRE E&M TIE LINE (2ODT)	4-WIRE E&M TIE LINE (2ODT)	DID (AUC)	DID (4DIT)	SLT (8LC)	SLT (4LC)	SLT (AUC)
26	WH-BL	GN		T0	T0	T0	TxT0	T0	T0	T0	T0	T0
1	BL-WH	RD		R0	R0	R0	TxR0	R0	R0	R0	R0	R0
27	WH-OR	BK		T1	T1		RcvT0	T1	T1	T1	T1	T1
2	OR-WH	YL		R1	R1		RcvR0	R1	R1	R1	R1	R1
28	WH-GN	GN		T2	T2	T1	TxT1		T2	T2	T2	
3	GN-WH	RD		R2	R2	R1	TxR1		R2	R2	R2	
29	WH-BR	BK		T3	T3		RcvT1		T3	T3	T3	
4	BR-WH	YL	1	R3	R3		RcvR1		R3	R3	R3	
30	WH-SL	GN			T4					T4		
5	SL-WH	RD			R4					R4		
31	RD-BL	BK			T5					T5		
6	BL-RD	YL	Note 1		R5					R5		
32	RD-OR	GN			T6					T6		
7	OR-RD	RD			R6					R6		
33	RD-GN	BK			T7					T7		
8	GN-RD	YL			R7					R7		
34	RD-BR	GN		T0	T0	T0	TxT0	T0	T0	T0	T0	T0
9	BR-RD	RD		R0	R0	R0	TxR0	R0	R0	R0	R0	R0
35	RD-SL	BK		T1	T1	T1	RcvT0	T1	T1	T1	T1	T1
10	SL-RD	YL		R1	R1	R1	RcvR0	R1	R1	R1	R1	R1
36	BK-BL	GN		T2	T2		TxT1		T2	T2	T2	
11	BL-BK	RD		R2	R2		TxR1		R2	R2	R2	
37	BK-OR	BK		T3	T3		RcvT1		T3	T3	T3	
12	OR-BK	YL	2	R3	R3		RcvR1		R3	R3	R3	
38	BK-GN	GN			T4					T4		
13	GN-BK	RD			R4					R4		
39	BK-BR	BK			T5					T5		
14	BR-BK	YL	Note 1		R5					R5		
40	BK-SL	GN			T6					T6		
15	SL-BK	RD			R6					R6		
41	YL-BL	BK			T7					T7		
16	BL-YL	YL			R7					R7		

Table 007-2 LTC0 and LTC1 MDF Cross Connection Information (Continued)

PIN	RUNNING CABLE	STATION CABLE	SLOTS	TYPE OF INTERFACE								
				CO (4COT)	CO (8COT)	2-WIRE E&M TIE LINE (2ODT)	4-WIRE E&M TIE LINE (2ODT)	DID (AUC)	DID (4DIT)	SLT (8LC)	SLT (4LC)	SLT (AUC)
42	YL-OR	GN	3	T0	T0	T0	TxT0	T0	T0	T0	T0	T0
17	OR-YL	RD		R0	R0	R0	TxR0	R0	R0	R0	R0	R0
43	YL-GN	BK		T1	T1		RcvT0	T1	T1	T1	T1	T1
18	GN-YL	YL		R1	R1		RcvR0	R1	R1	R1	R1	R1
44	YL-BR	GN		T2	T2	T1	TxT1		T2	T2	T2	
19	BR-YL	RD		R2	R2	R1	TxR1		R2	R2	R2	
45	YL-SL	BK		T3	T3		RcvT1		T3	T3	T3	
20	SL-YL	YL		R3	R3		RcvR1		R3	R3	R3	
46	VI-BL	GN		T0	T4	T0	TxT0	T0	T0	T4	T0	T0
21	BL-VI	RD		R0	R4	R0	TxR0	R0	R0	R4	R0	R0
47	VI-OR	BK		T1	T5		RcvT0	T1	T1	T5	T1	T1
22	OR-VI	YL		R1	R5		RcvR0	R1	R1	R5	R1	R1
48	VI-GN	GN		T2	T6	T1	TxT1		T2	T6	T2	
23	GN-VI	RD		R2	R6	R1	TxR1		R2	R6	R2	
49	VI-BR	BK		T3	T7		RcvT1		T3	T7	T3	
24	BR-VI	YL		R3	R7		RcvR1		R3	R7	R3	
50	VI-SL	MN*	Note 2									
25	SL-VI	MJ*										

Major and minor alarm connections are used for external indications.

Note 1: *When an 8-port card is mounted in LT04 or LT06, LT05 or LT07 must be left vacant or mounted with circuit card, which do not interfere with the 8-port cards.*

Note 2: *When NEAXmail AD8 is mounted in LT00, the pins on LTC1 are used for NEAXmail AD8 internal modem connection.*

Table 007-2 LTC0 and LTC1 MDF Cross Connection Information (Continued)

PIN	RUNNING CABLE	STATION CABLE	SLOTS	TYPE OF INTERFACE						
				Multiline Terminal (8DLC) Note 2	Multiline Terminal (4DLC) Note 2	Multiline Terminal (2DLCB) Note 2	SN610 ATTCON (2DLCC) Note 3	EXT. KEY (DK00)	EXT. RELAY (DK00)	EXT. PAGE/ MOH/ BGM (4COT)
26	WH-BL	GN		T0	T0	T0	RA0	K1	K1	T
1	BL-WH	RD		R0	R0	R0	TA0	K0	K0	R
27	WH-OR	BK		T1	T1	T1	RB0	K3	K3	T
2	OR-WH	YL		R1	R1	R1	TB0	K2	K2	R
28	WH-GN	GN		T2	T2		RA1	K5	K5	T
3	GN-WH	RD		R2	R2		TA1	K4	K4	R
29	WH-BR	BK		T3	T3		RB1	K7	K7	T
4	BR-WH	YL	1	R3	R3		TB1	K6	K6	R
30	WH-SL	GN		T4						
5	SL-WH	RD		R4						
31	RD-BL	BK		T5						
6	BL-RD	YL		R5						
32	RD-OR	GN	Note 1	T6						
7	OR-RD	RD		R6						
33	RD-GN	BK		T7						
8	GN-RD	YL		R7						
34	RD-BR	GN		T0	T0	T0	RA0	K1	K1	T
9	BR-RD	RD		R0	R0	R0	TA0	K0	K0	R
35	RD-SL	BK		T1	T1	T1	RB0	K3	K3	T
10	SL-RD	YL		R1	R1	R1	TB0	K2	K2	R
36	BK-BL	GN		T2	T2		RA1	K5	K5	T
11	BL-BK	RD		R2	R2		TA1	K4	K4	R
37	BK-OR	BK		T3	T3		RB1	K7	K7	T
12	OR-BK	YL	2	R3	R3		TB1	K6	K6	R
38	BK-GN	GN		T4						
13	GN-BK	RD		R4						
39	BK-BR	BK		T5						
14	BR-BK	YL		R5						
40	BK-SL	GN	Note 1	T6						
15	SL-BK	RD		R6						
41	YL-BL	BK		T7						
16	BL-YL	YL		R7						

Note 1: *When LT04 or LT06 is mounted with an 8-port card, LT05 and/or LT07 must be vacant or mounted with a noninterfacing card.*

Note 2: *2 wire type for Multiline Terminal/DSS Console/DESKCON.*

Note 3: *4 wire type for Multiline Terminal/SN610 ATTCON.*

Table 007-2 LTC0 and LTC1 MDF Cross Connection Information (Continued)

PIN	RUNNING CABLE	STATION CABLE	SLOTS	TYPE OF INTERFACE						
				Multiline Terminal (8DLC) Note 2	Multiline Terminal (4DLC) Note 2	Multiline Terminal (2DLCB) Note 2	SN610 ATTCON (2DLCC) Note 3	EXT. KEY (DK00)	EXT. RELAY (DK00)	EXT. PAGE/ MOH/ BGM (4COT)
42	YL-OR	GN	3	T0	T0	T0	RA0	K1	K1	T
17	OR-YL	RD		R0	R0	R0	TA0	K0	K0	R
43	YL-GN	BK		T1	T1	T1	RB0	K3	K3	T
18	GN-YL	YL		R1	R1	R1	TB0	K2	K2	R
44	YL-BR	GN		T2	T2		RA1	K5	K5	T
19	BR-YL	RD		R2	R2		TA1	K4	K4	R
45	YL-SL	BK		T3	T3		RB1	K7	K7	T
20	SL-YL	YL		R3	R3		TB1	K6	K6	R
46	VI-BL	GN		T4	T0	T0	RA0	K1	K1	T
21	BL-VI	RD		R4	R0	R0	TA0	K0	K0	R
47	VI-OR	BK		T5	T1	T1	RB0	K3	K3	T
22	OR-VI	YL		R5	R1	R1	TB0	K2	K2	R
48	VI-GN	GN		T6	T2		RA1	K5	K5	T
23	GN-VI	RD		R6	R2		TA1	K4	K4	R
49	VI-BR	BK		T7	T3		RB1	K7	K7	T
24	BR-VI	YL		R7	R3		TB1	K6	K6	R
50	VI-SL	MN*	Note 4							
25	SL-VI	MJ*								

Major and minor alarm connections are used for external indications.

Note 1: *When LT04 or LT06 is mounted with an 8-port card, LT05 and/or LT07 must be vacant or mounted with a noninter-facing card.*

Note 2: *2 wire type for Multiline Terminal/DSS Console/DESKCON.*

Note 3: *4 wire type for Multiline Terminal/SN610 ATTCON.*

Note 4: *When NEAXmail AD8 is mounted in LT00, the pins on LTC1 are used for NEAXmail AD8 internal modem connection.*

(1) C.O. Trunk

    (a) 4 Line C.O. Trunk (PN-4COT) (see Figure 007-4)
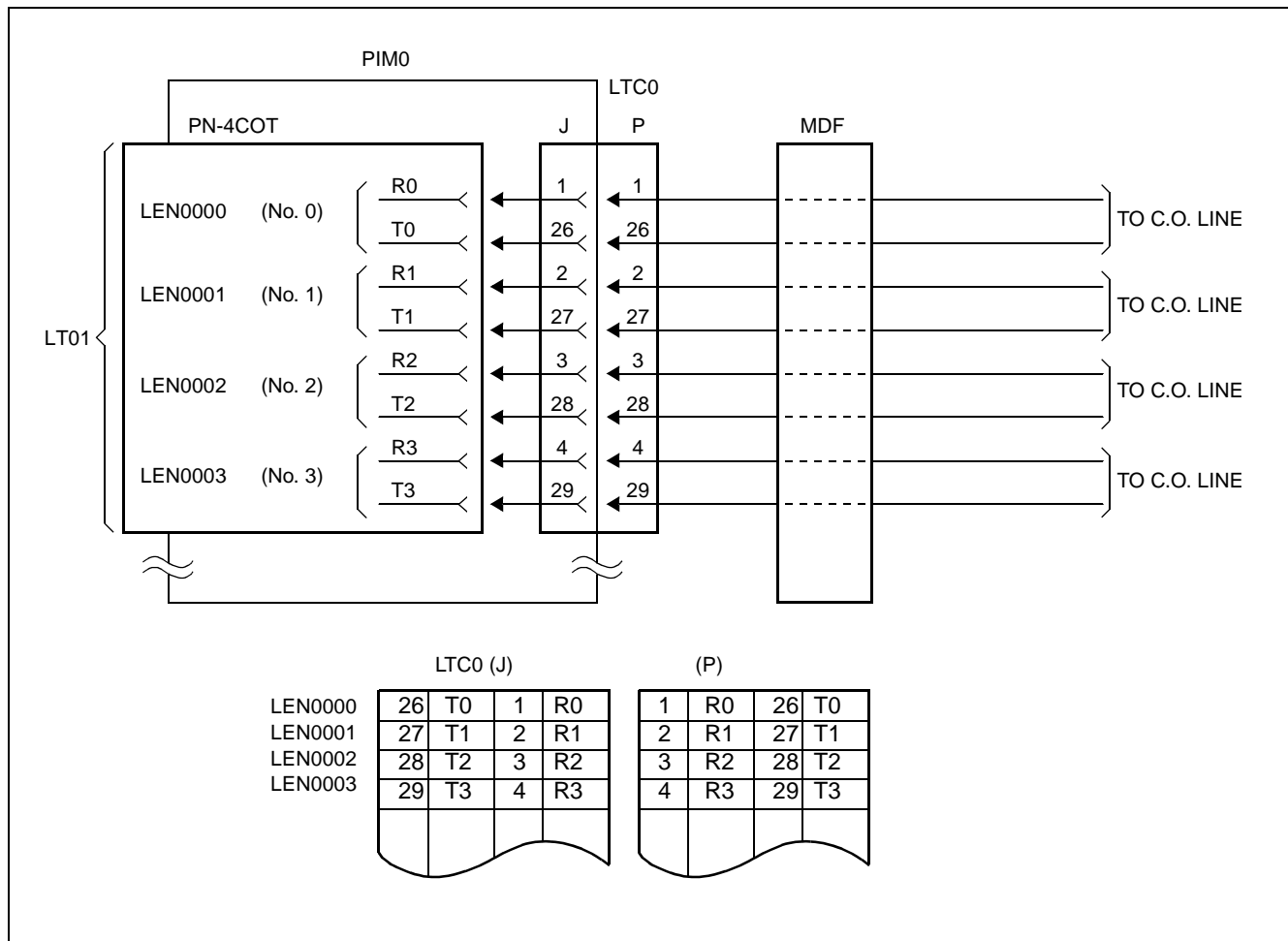
Figure 007-4 MDF Cross Connection for 4 Line C.O. Trunk Card (PN-4COT)

(b) 8 Line C.O. Trunk (PN-8COT) (see Figure 007-5)
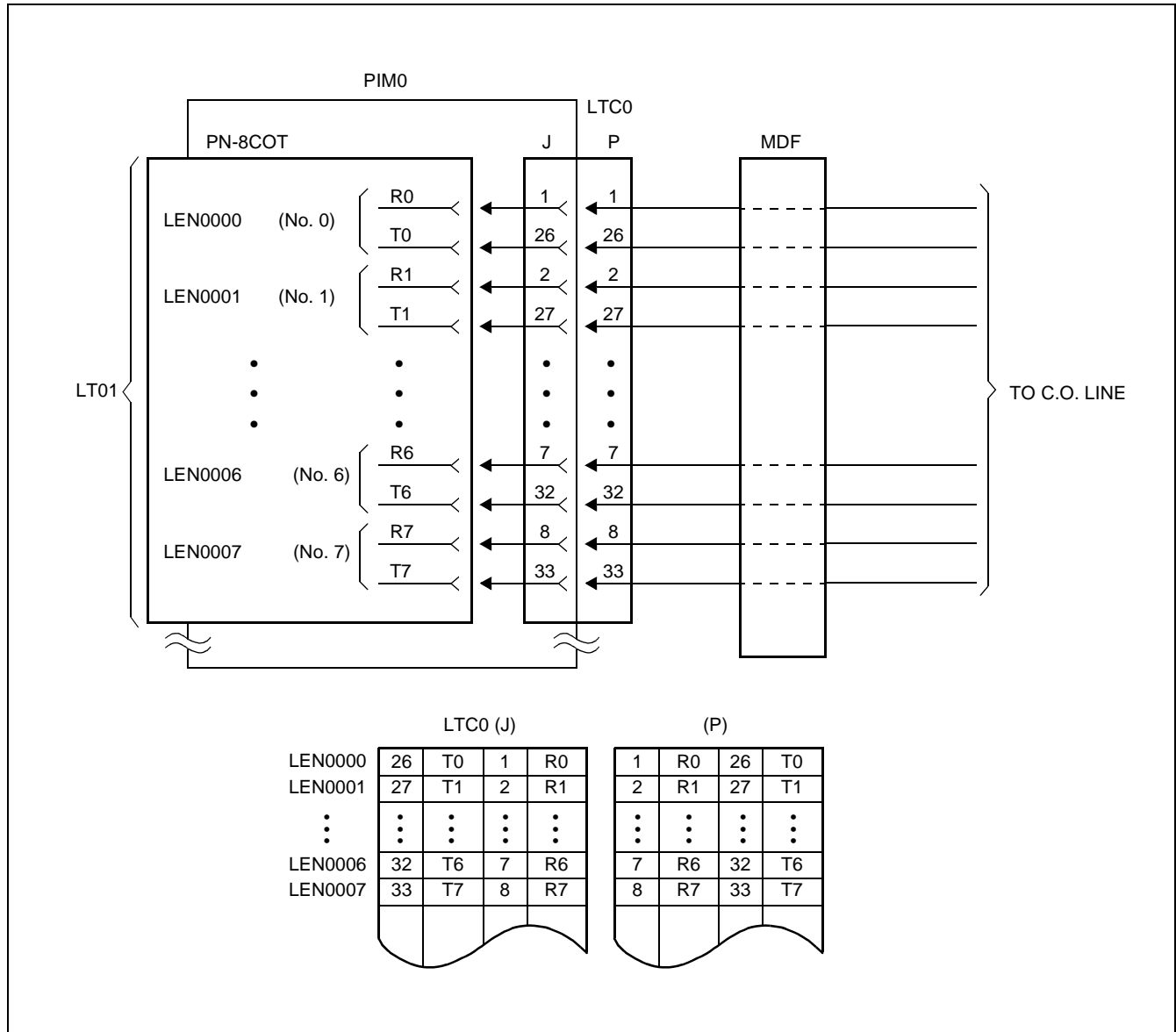
Figure 007-5 MDF Cross Connection for 8 Line C.O. Trunk Card (PN-8COT)

(2) Tie Line Trunk

(a) 4W E&M Trunk (PN-2ODT) (see Figure 007-6)

Note 1: *Both No. 0 and No. 1 circuits must be set to same purpose (2-wire or 4-wire) in one PN-2ODT card.*

Note 2: *When connecting the E and M, make the installation cable by using the connector attached with the PN-2ODT card.*

Figure 007-6 MDF Cross Connection for 4W E&M Trunk Card (PN-2ODT)

① LTC CONNECTOR

② CN1 CONNECTOR
(FRONT CONNECTOR)

CN1

LTC0 (J)

(P)

26	TxT0	1	TxR0
27	RcvT0	2	RcvR0
28	TxT1	3	TxR1
29	RcvT1	4	RcvR1

LEN0000 { (rows 26/27)
LEN0001 { (rows 28/29)

1	TxR0	26	TxT0
2	RcvR0	27	RcvT0
3	TxR1	28	TxT1
4	RcvR1	29	RcvT1

LEN0001 { M1, E1
LEN0000 { M0, E0
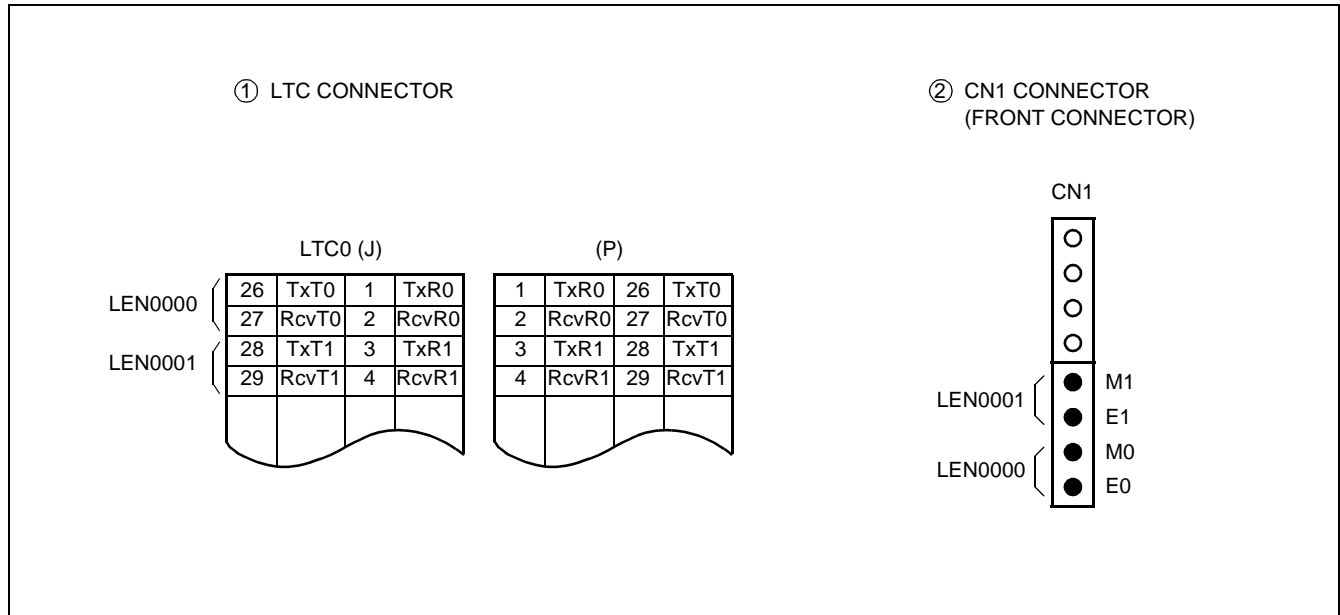
Figure 007-6 MDF Cross Connection for 4W E&M Trunk Card (PN-2ODT) (Continued)

(b) 2W E&M (PN-2ODT) (see Figure 007-7)

Note 1: *Both No. 0 and No. 1 circuits must be set to same purpose (2-wire or 4-wire) in one PN-2ODT card.*

Note 2: *When connecting the E and M, make the installation cable by using the connector attached with the PN-2ODT card.*
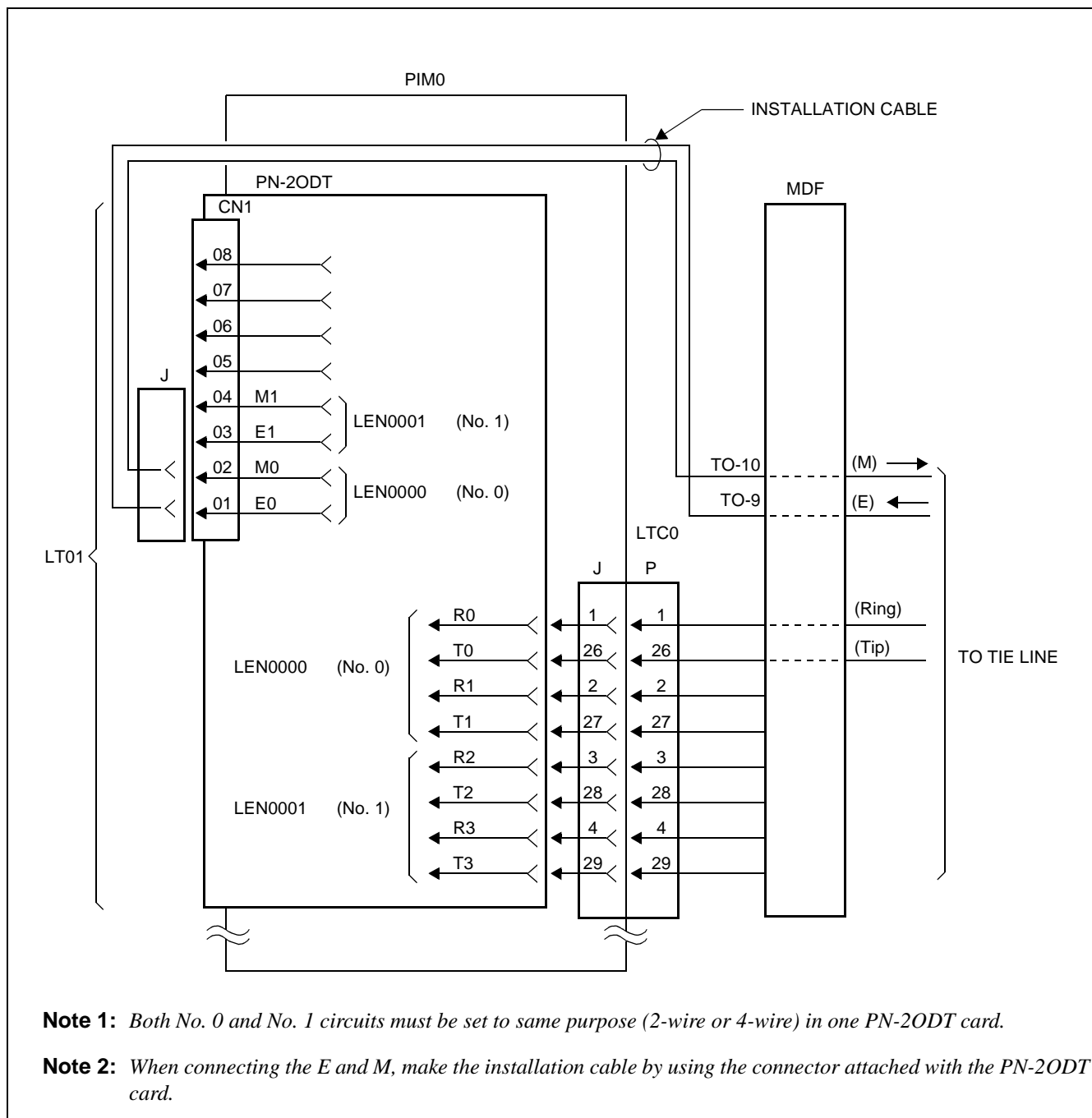
Figure 007-7 MDF Cross Connection for 2W E&M Trunk Card (PN-2ODT)
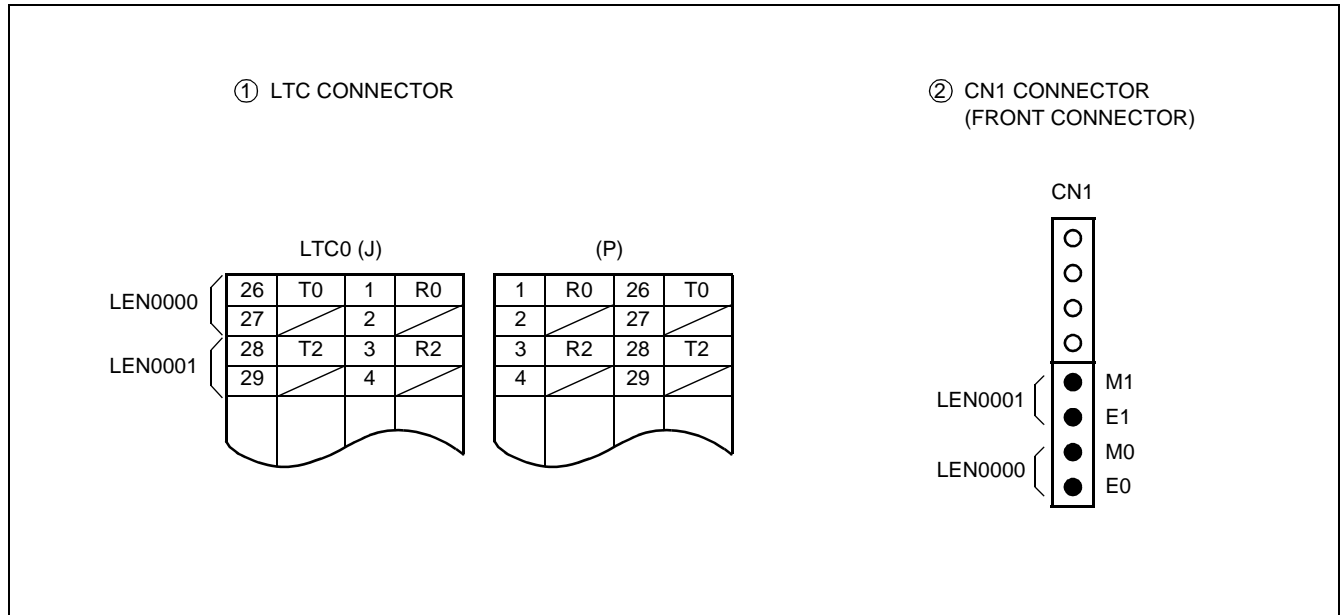
Figure 007-7 MDF Cross Connection for 2W E&M Trunk Card (PN-2ODT) (Continued)

(3) DID Trunk

    (a) 2 Line DID Trunk (PN-AUCA) (see Figure 007-8)
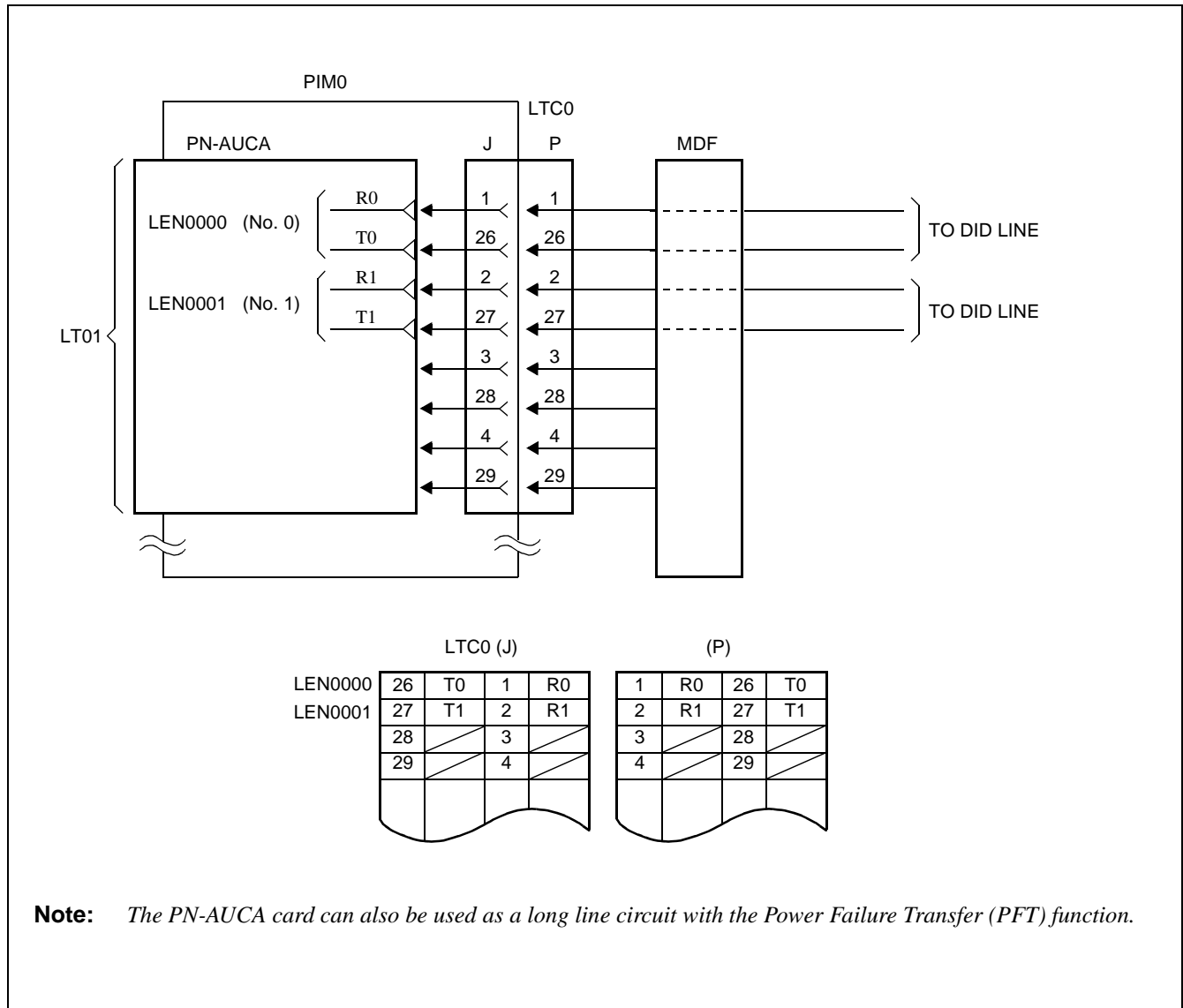
Figure 007-8 MDF Cross Connection for 2 Line DID Trunk Card (PN-AUCA)

(b)   4 Line DID Trunk (PN-4DITB) (see Figure 007-9)
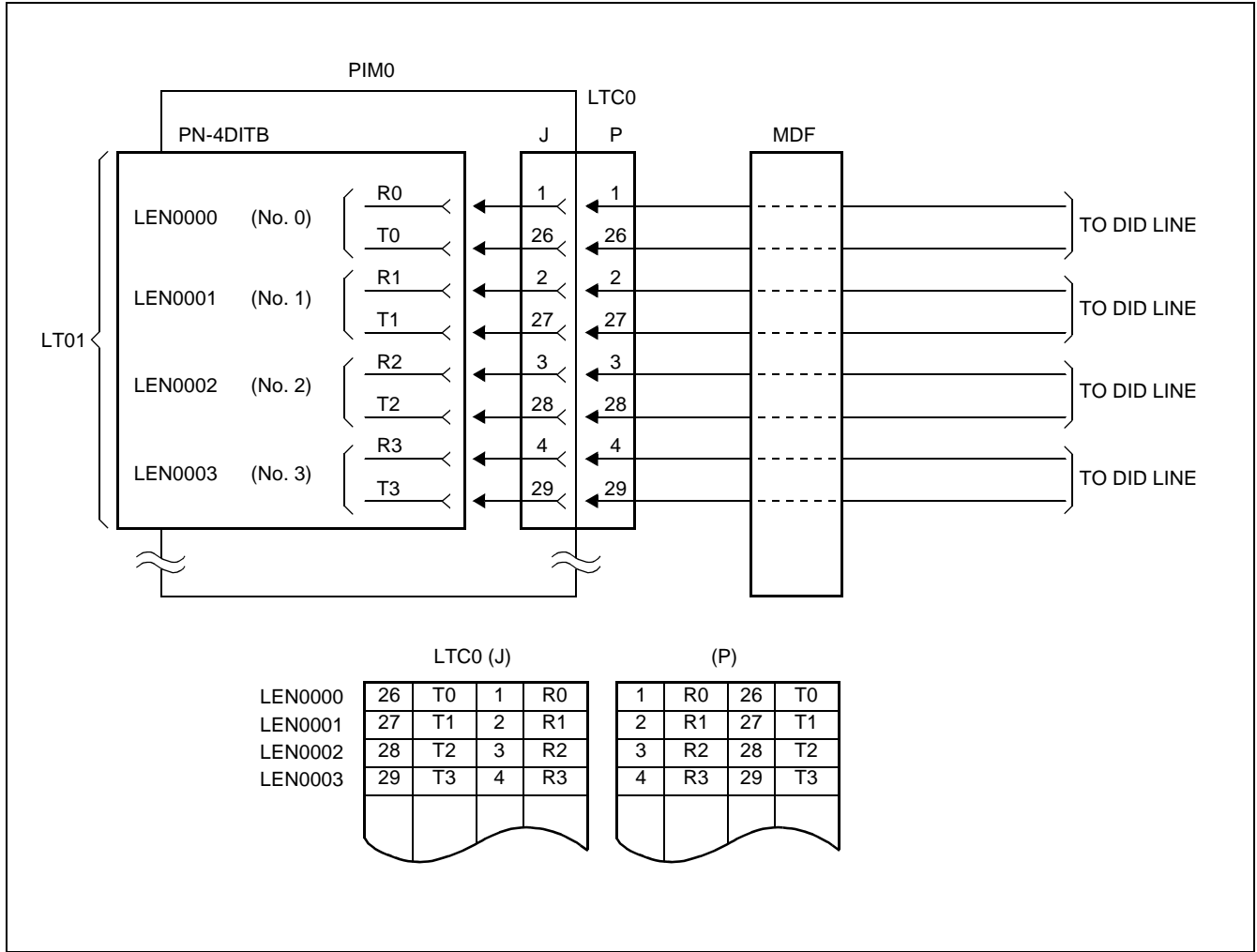
Figure 007-9   MDF Cross Connection for 4 Line DID Trunk Card (PN-4DITB)

(4)   Single Line Telephone

(a)   Standard Line (PN-8LC) (see Figure 007-10)
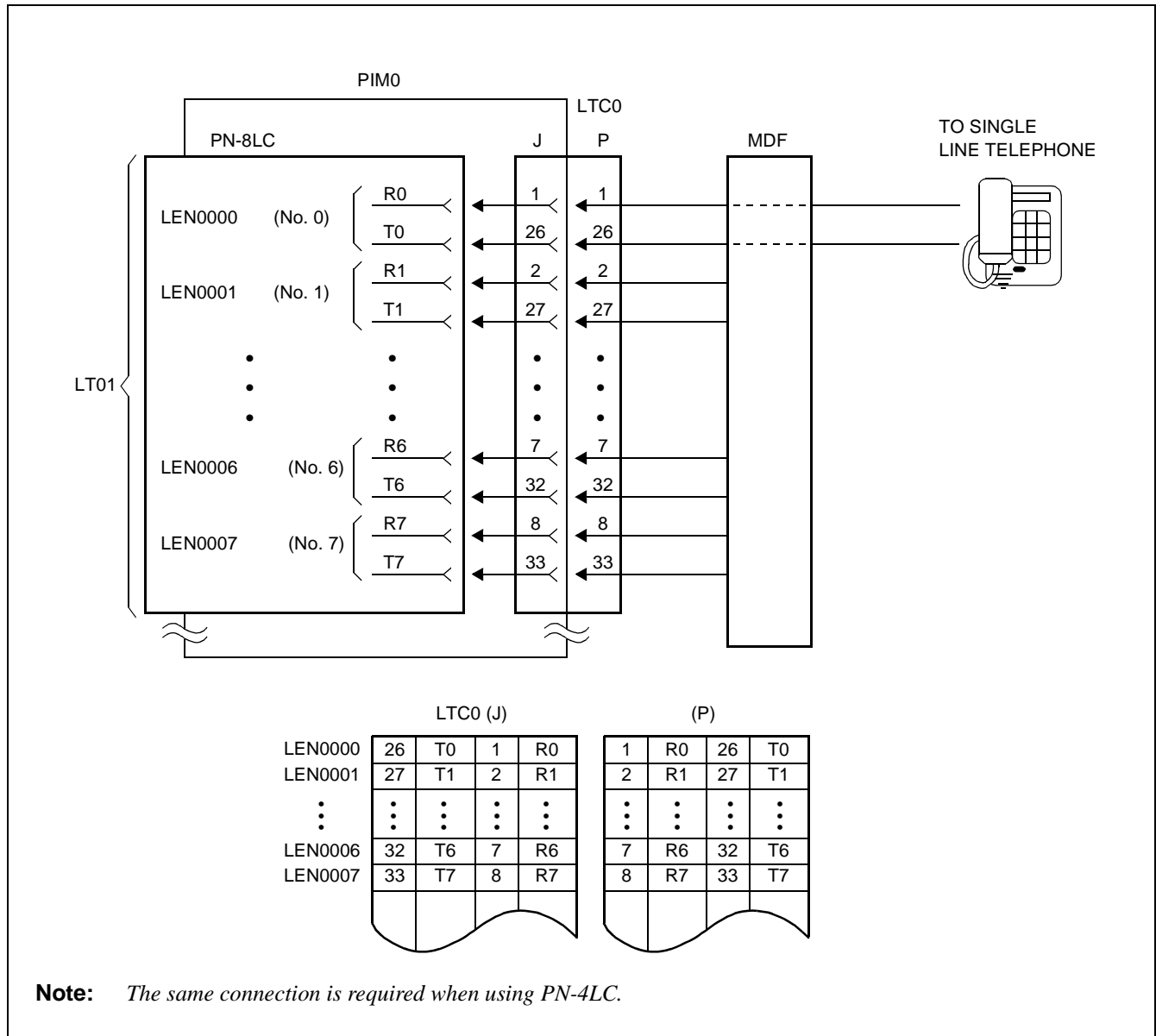
Figure 007-10 MDF Cross Connection for Single Line Telephone (Standard Line)

(b)   Long Line (PN-AUCA) (see Figure 007-11)
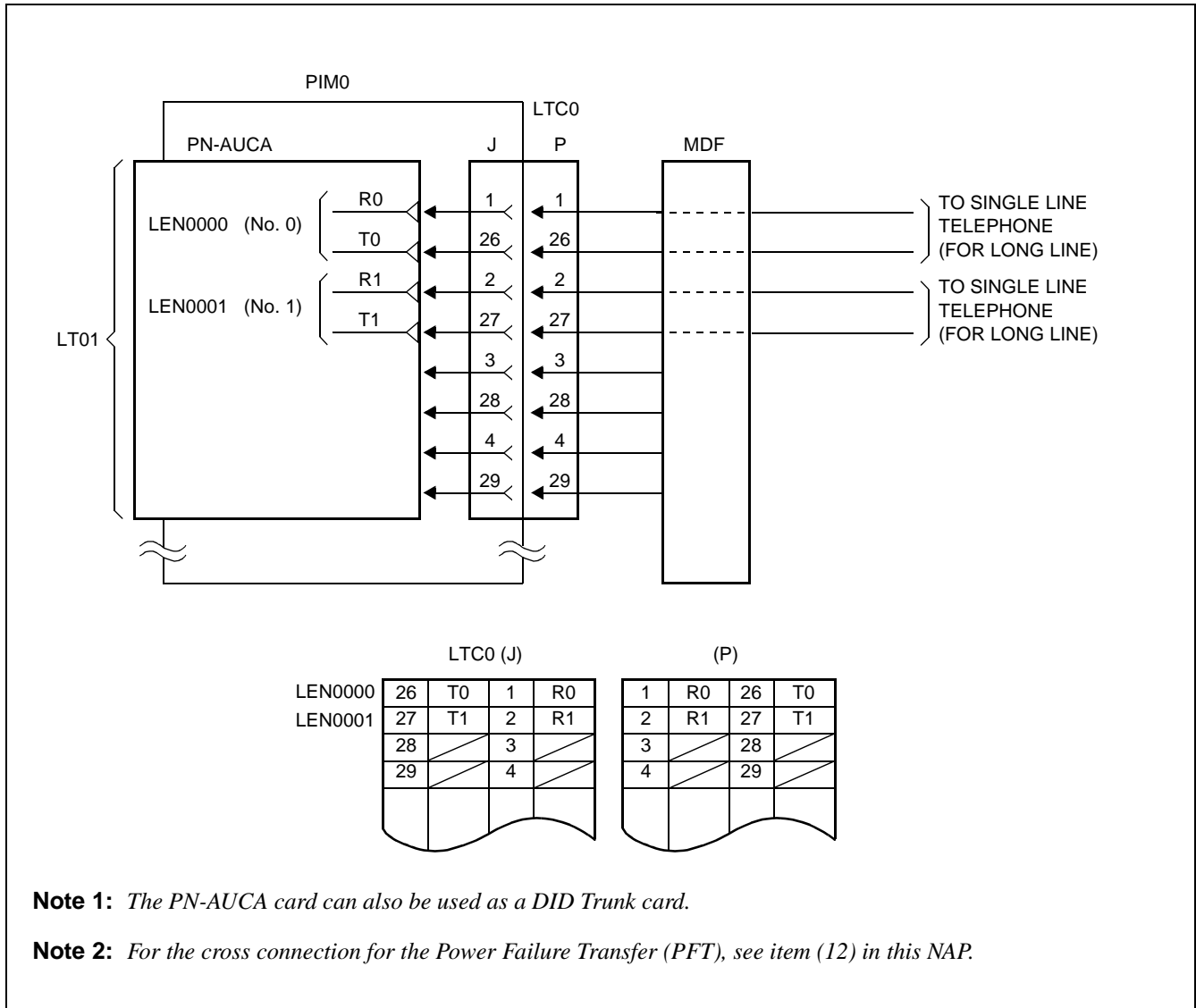
Figure 007-11 MDF Cross Connection for Single Line Telephone (Long Line)

(5) Multiline Terminal/DSS Console

    (a) Standard Line (PN-8DLC) (see Figure 007-12)
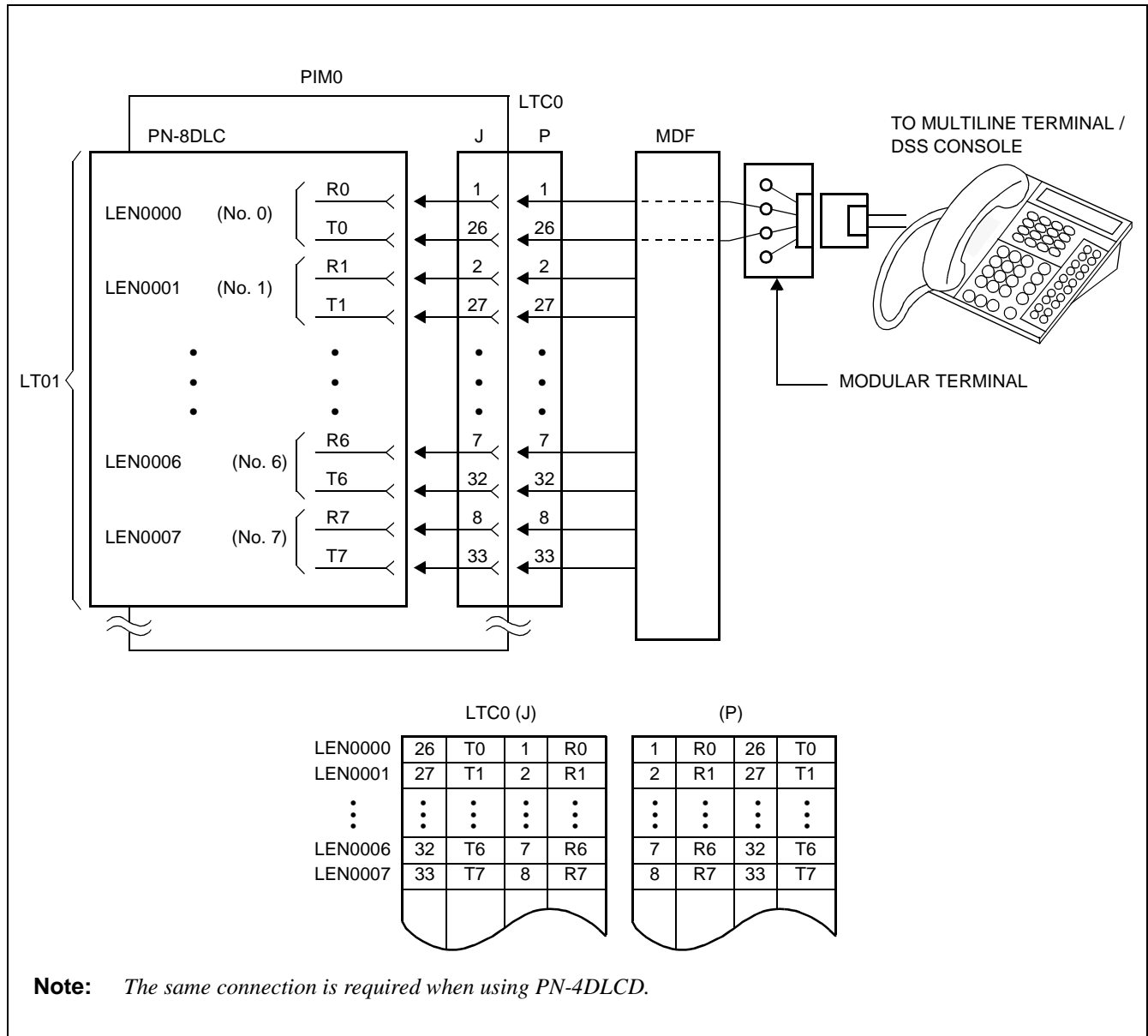
Figure 007-12 MDF Cross Connection for Multiline Terminal/DSS Console (Standard Line)

(b)   Long Line (PN-2DLCB/N) (see Figure 007-13)
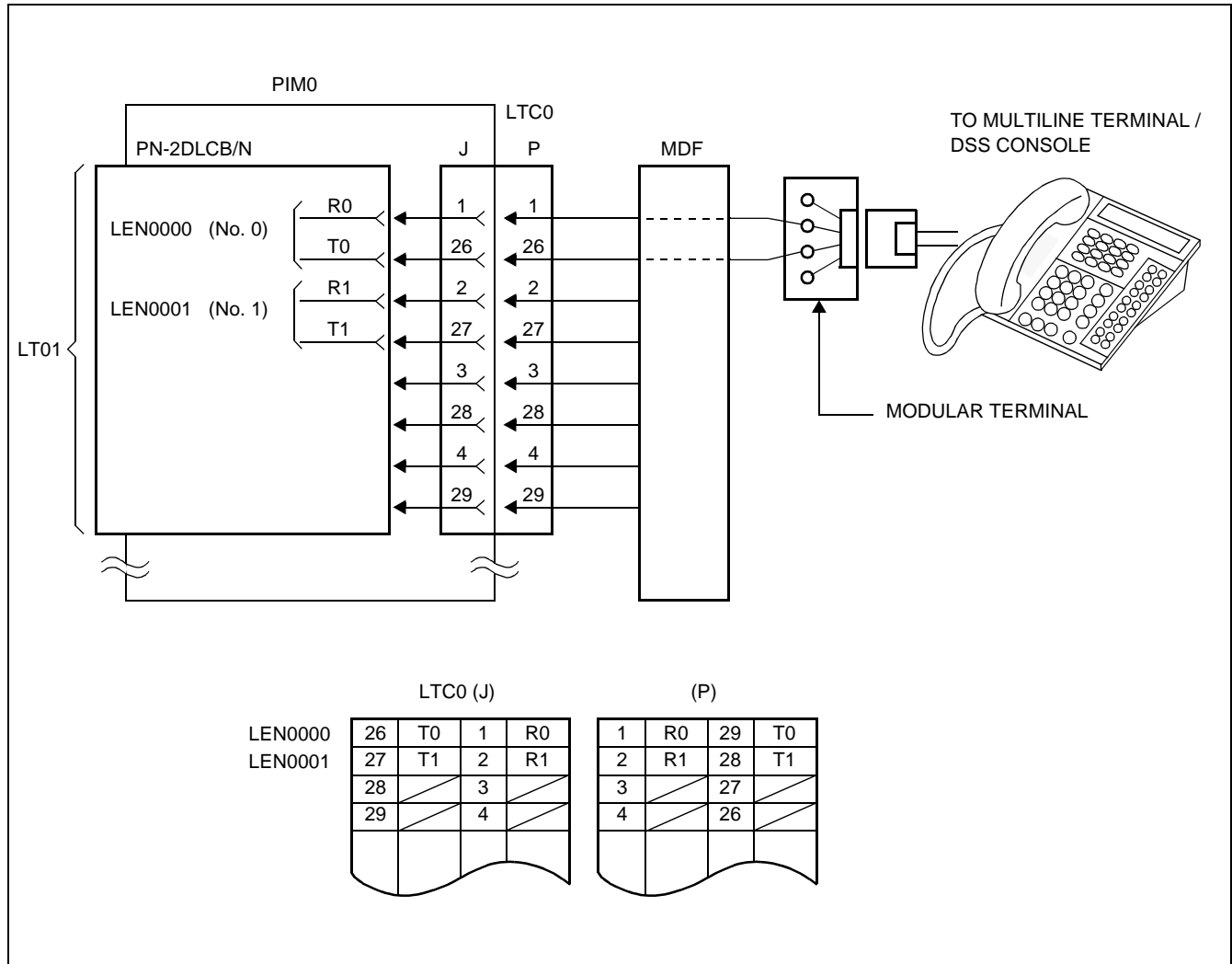
Figure 007-13   MDF Cross Connection for Multiline Terminal/DSS Console (Long Line)

(6) SN610- ATTCON

    (a)   Installation of SN610 ATTCON

STEP 1:   Screw the handset support onto the bottom of the console as shown in Figure 007-14.
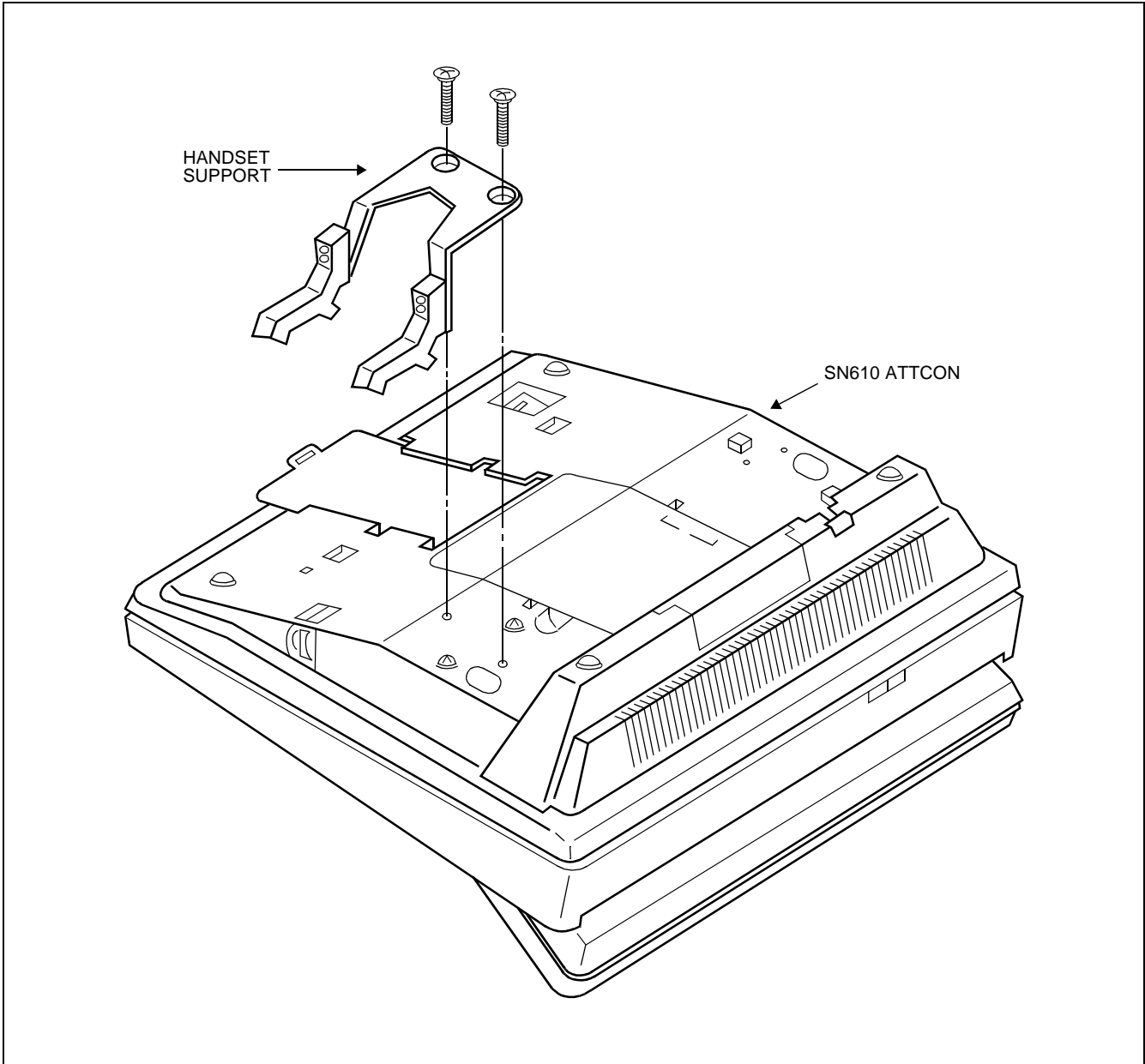
Figure 007-14 Mounting Handset Support to SN610 ATTCON

STEP 2: To provide the console with the headset in place of the handset, unplug the modular cord from the handset and then plug the modular cord to the jack set as shown in Figure 007-15.

SN610
ATTCON

MODULAR
CORD
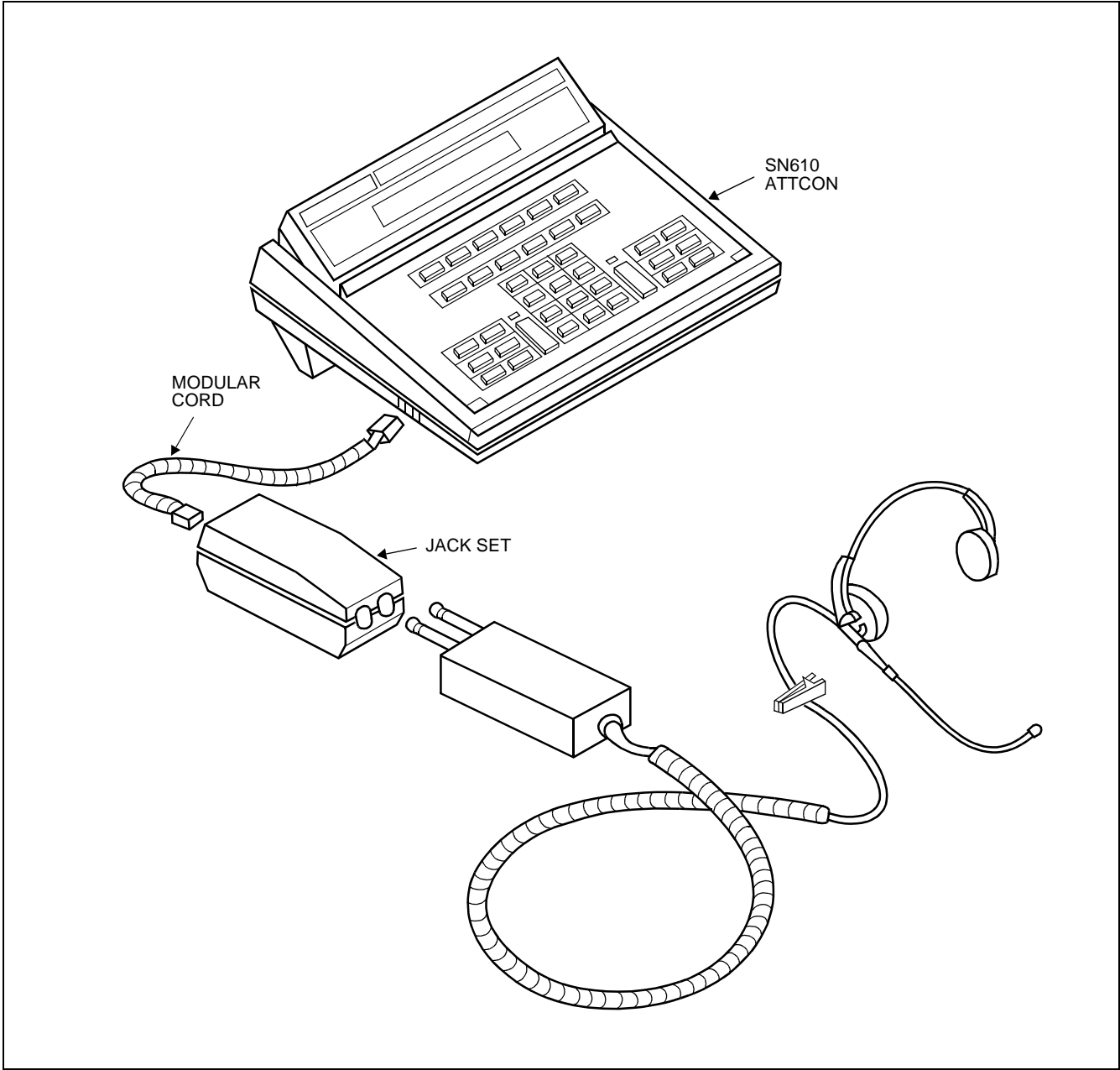
JACK SET

Figure 007-15 Jack Set Installation for SN610 ATTCON

STEP 3: Set the switch located inside the console according to the type of headset/handset connected. Refer to Figure 007-16.

- Slide the directory out of the way.

  Then insert a flat screw driver's blade into the notched opening and apply light upward pressure until the access panel is clear of the front lip. At the same time apply pressure (toward you) at the rear of the pedestal to move the access panel.

ACCESS PANEL
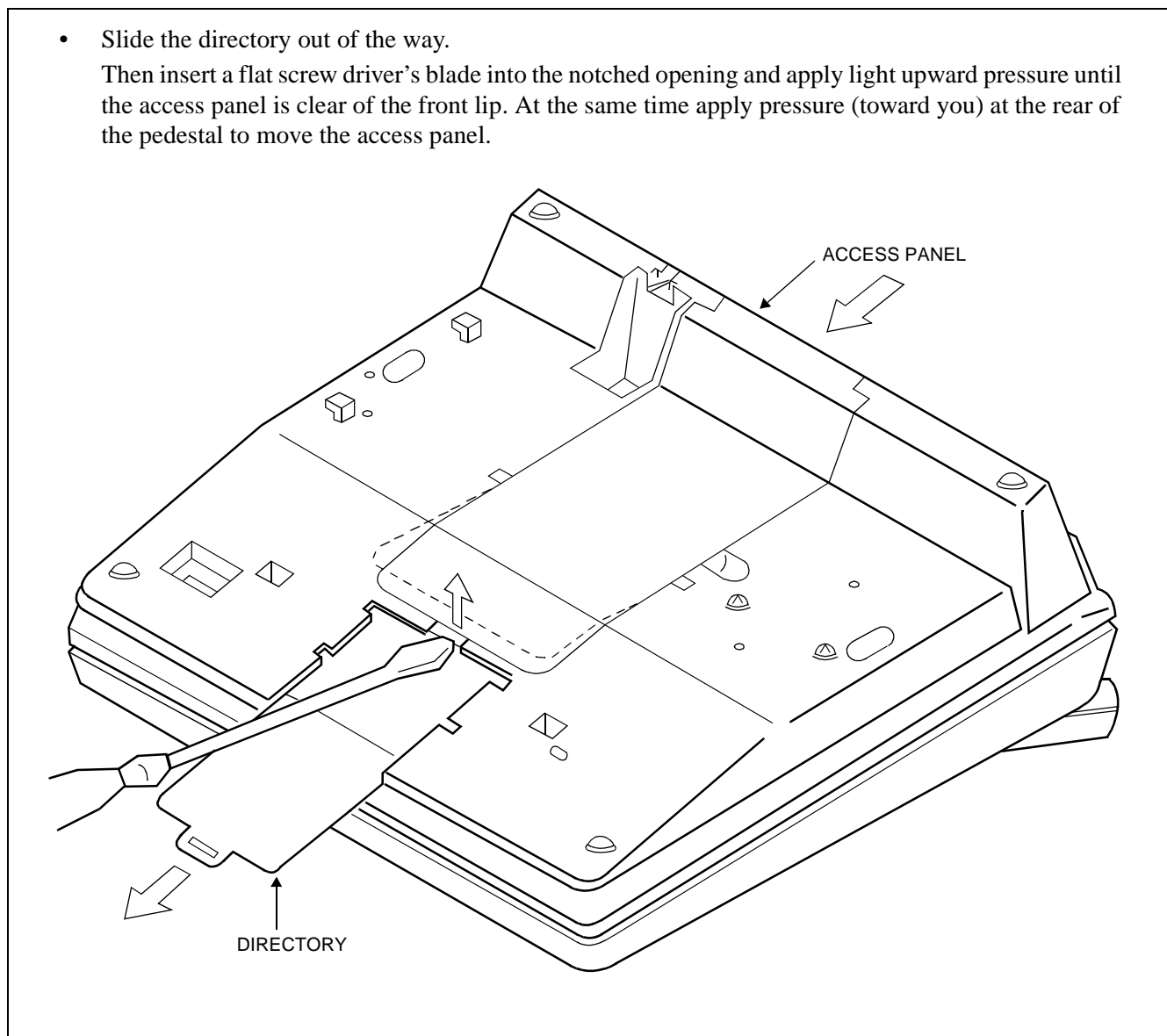
DIRECTORY

Figure 007-16 SN610 ATTCON Switch Setting

- Set the switch according to the type of headset/handset connected.
    - C: Carbon Type Handset/Headset
    - S: SUPRA Headset
    - D: D^{term} Type Handset

- Replace the directory and access panel.
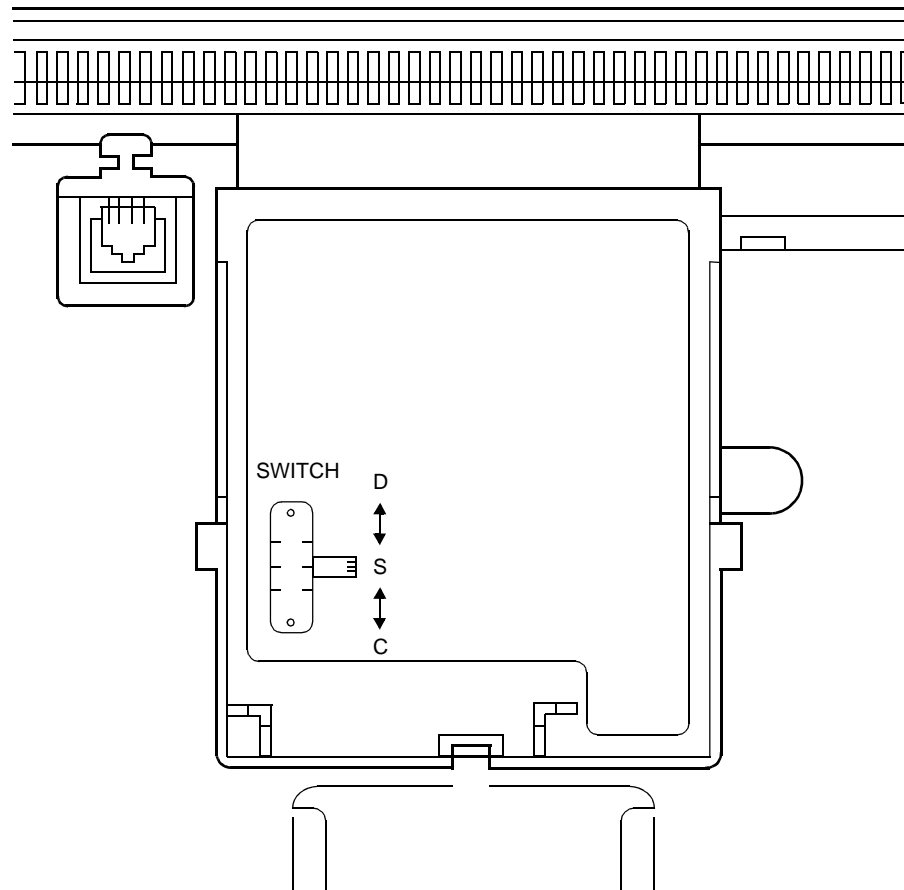
Figure 007-16 SN610 ATTCON Switch Setting (Continued)

STEP 4: Plug the line cord into the modular jack located at the bottom of the console as shown in Figure 006-16. For the MDF cross connection for the SN610 ATTCON, refer to Figure 007-17.
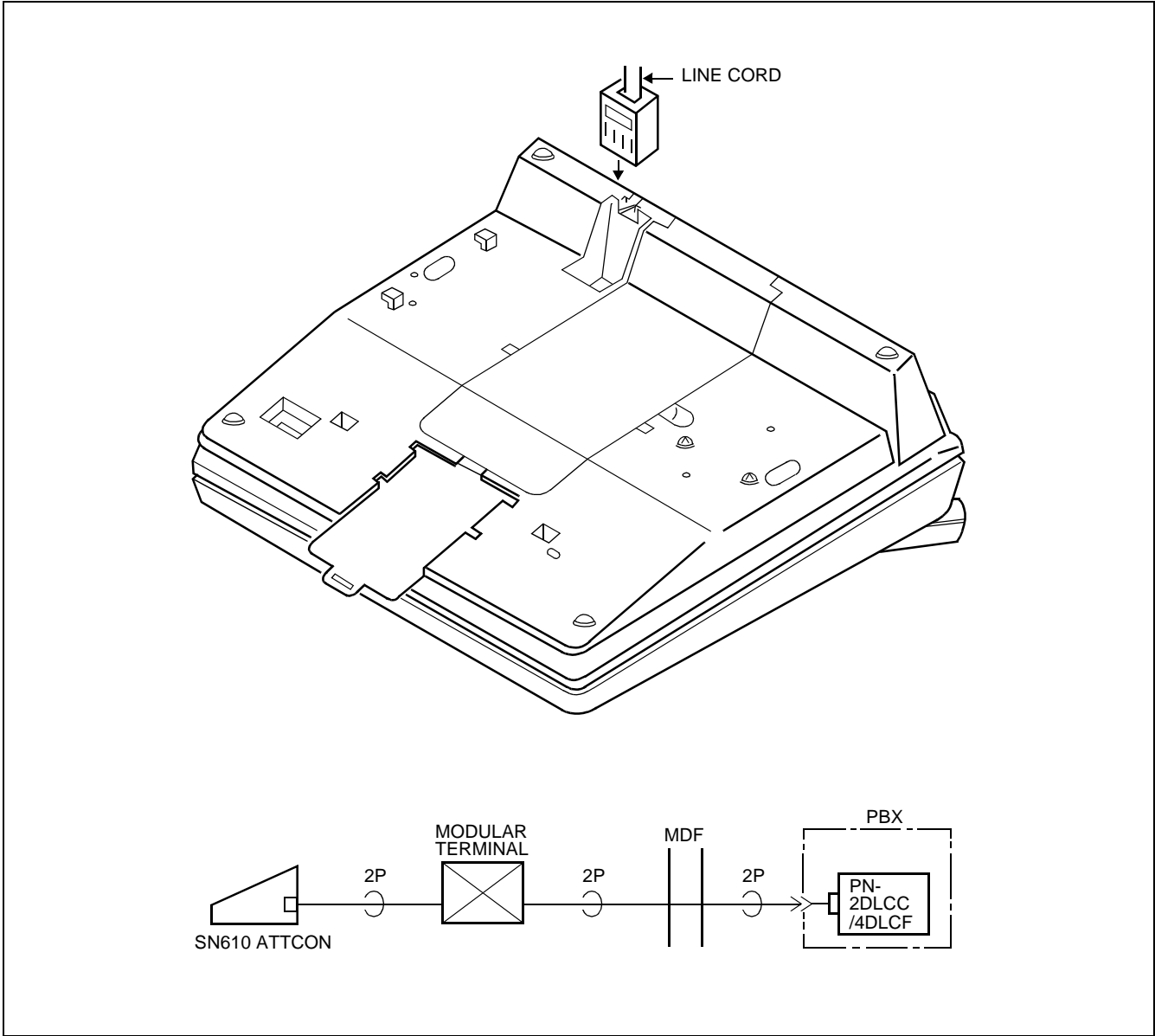
Figure 007-17 Cable Connection to SN610 ATTCON

(b)   MDF Cross Connection (see Figure 007-18)
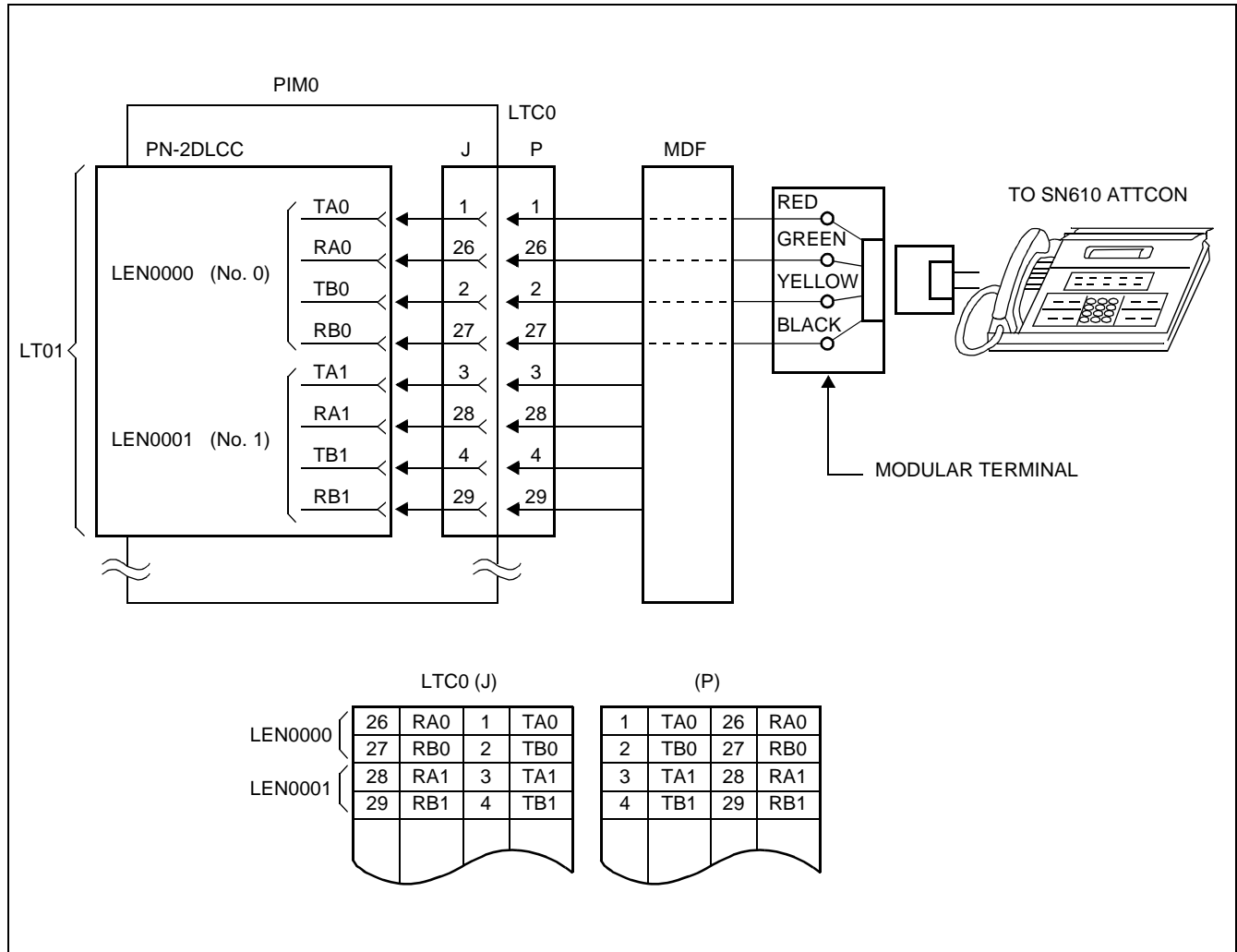
Figure 007-18   MDF Cross Connection for SN610 ATTCON

(7) Day/Night Mode Change by External Key (see Figure 007-19)
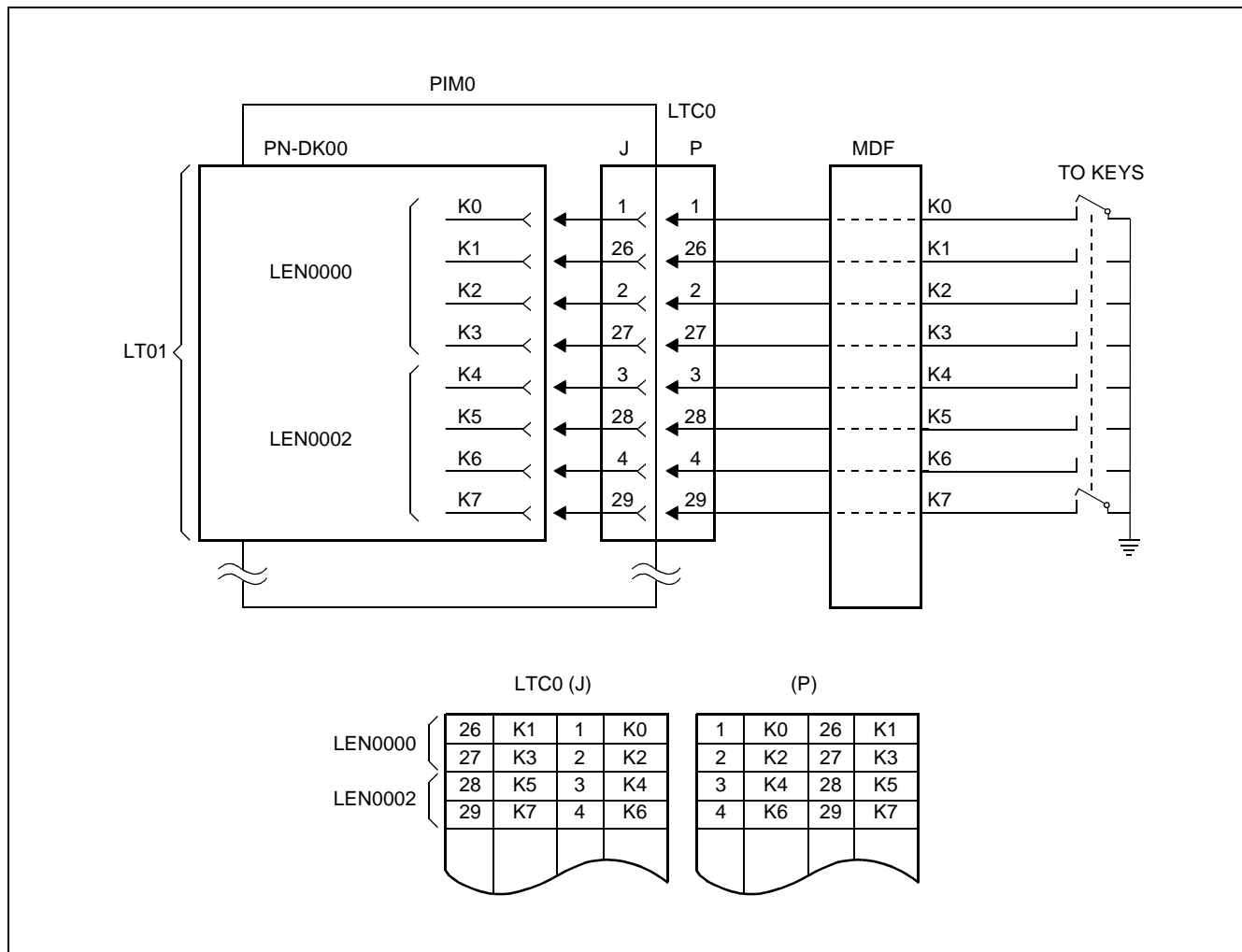
Figure 007-19 MDF Cross Connection for Day/Night Mode Change by External Key

(8) External TAS Indicator

    (a) Outline of the Connection (see Figure 007-20)
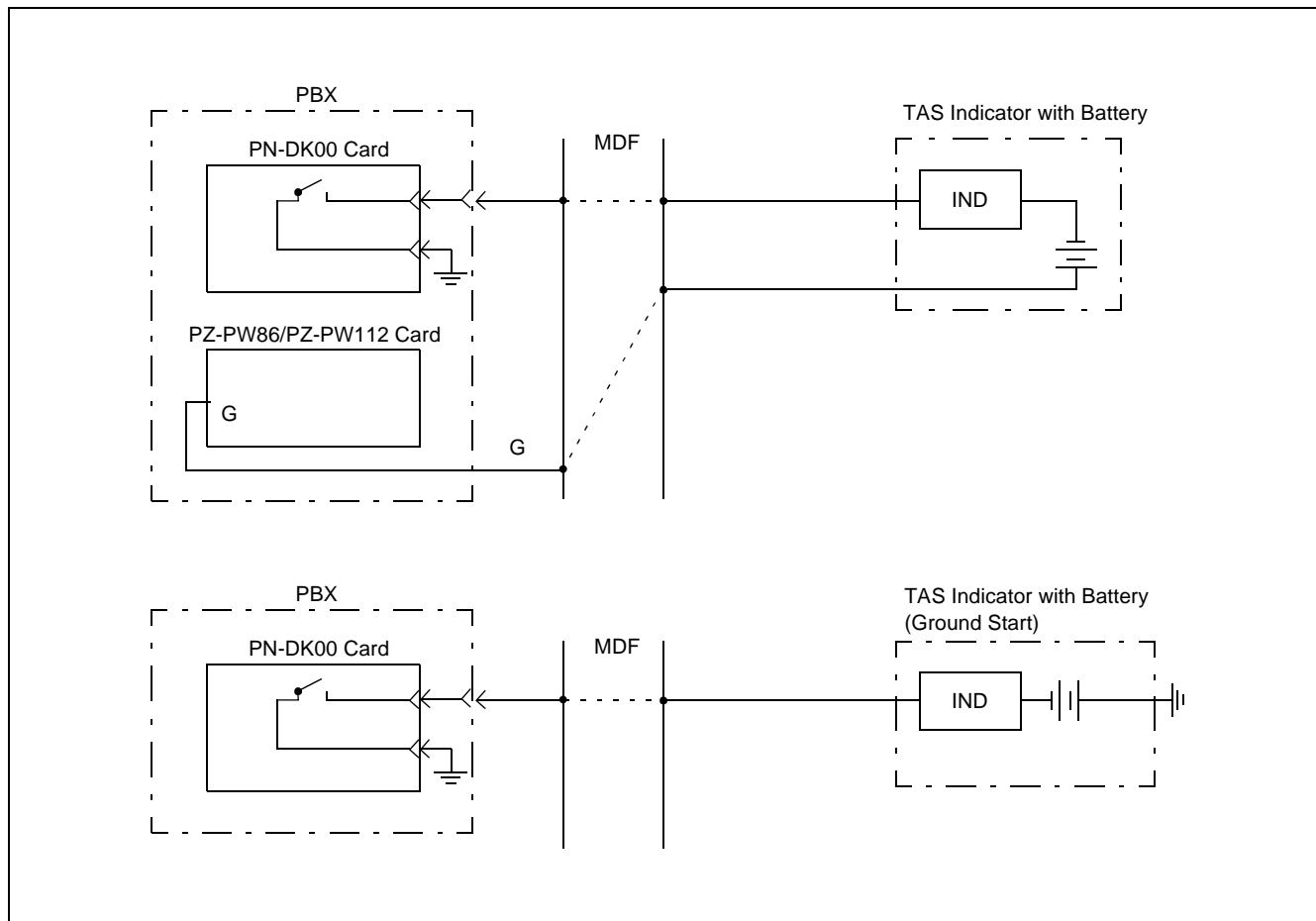
Figure 007-20   External TAS Indicator Connection Outline

(b) MDF Cross Connection

- When using a TAS Indicator with a Battery (see Figure 007-21)
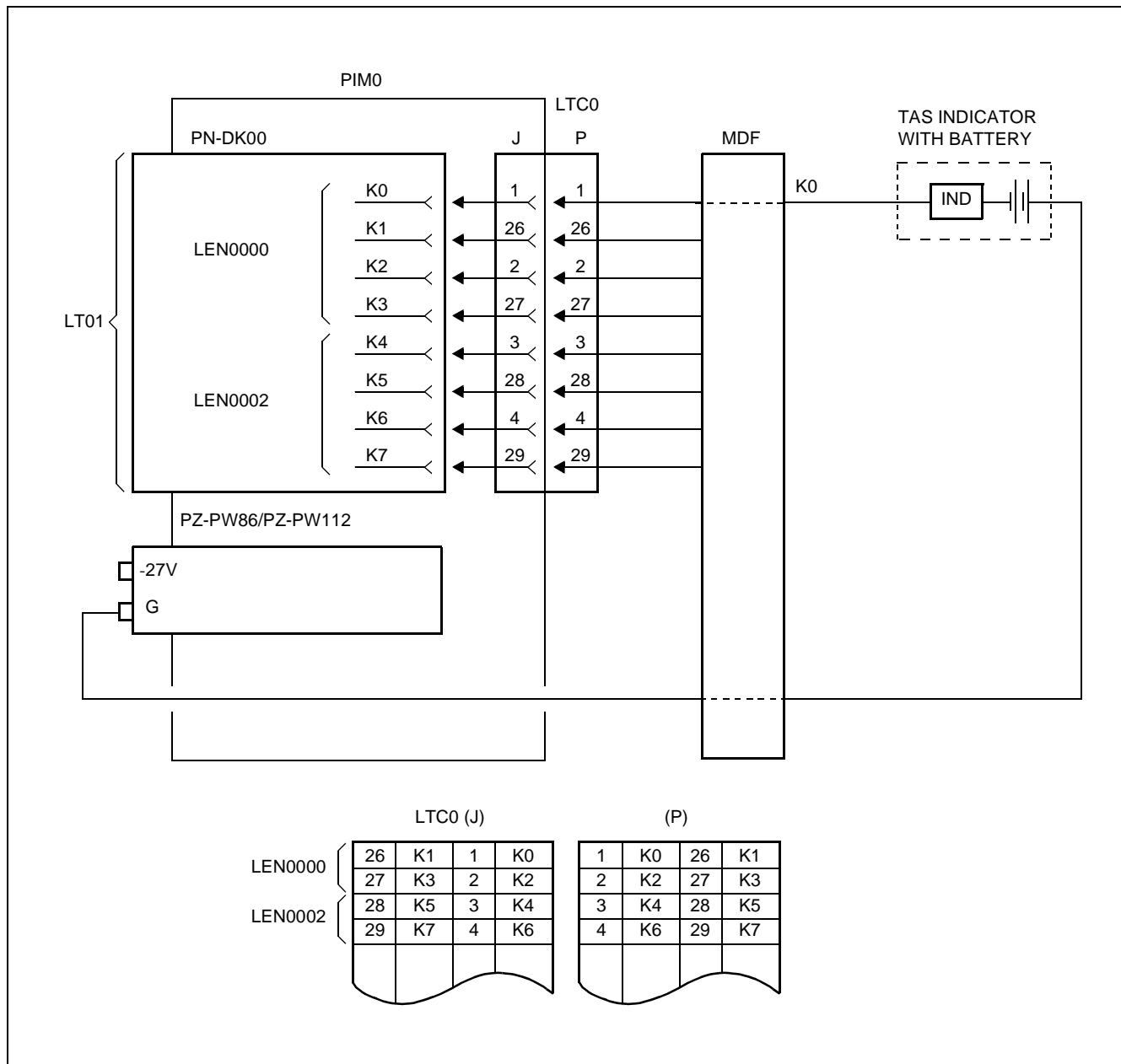
Figure 007-21   MDF Cross Connection for TAS Indicator with Battery

- When using a TAS Indicator with a Battery (Ground Start) (see Figure 007-22)
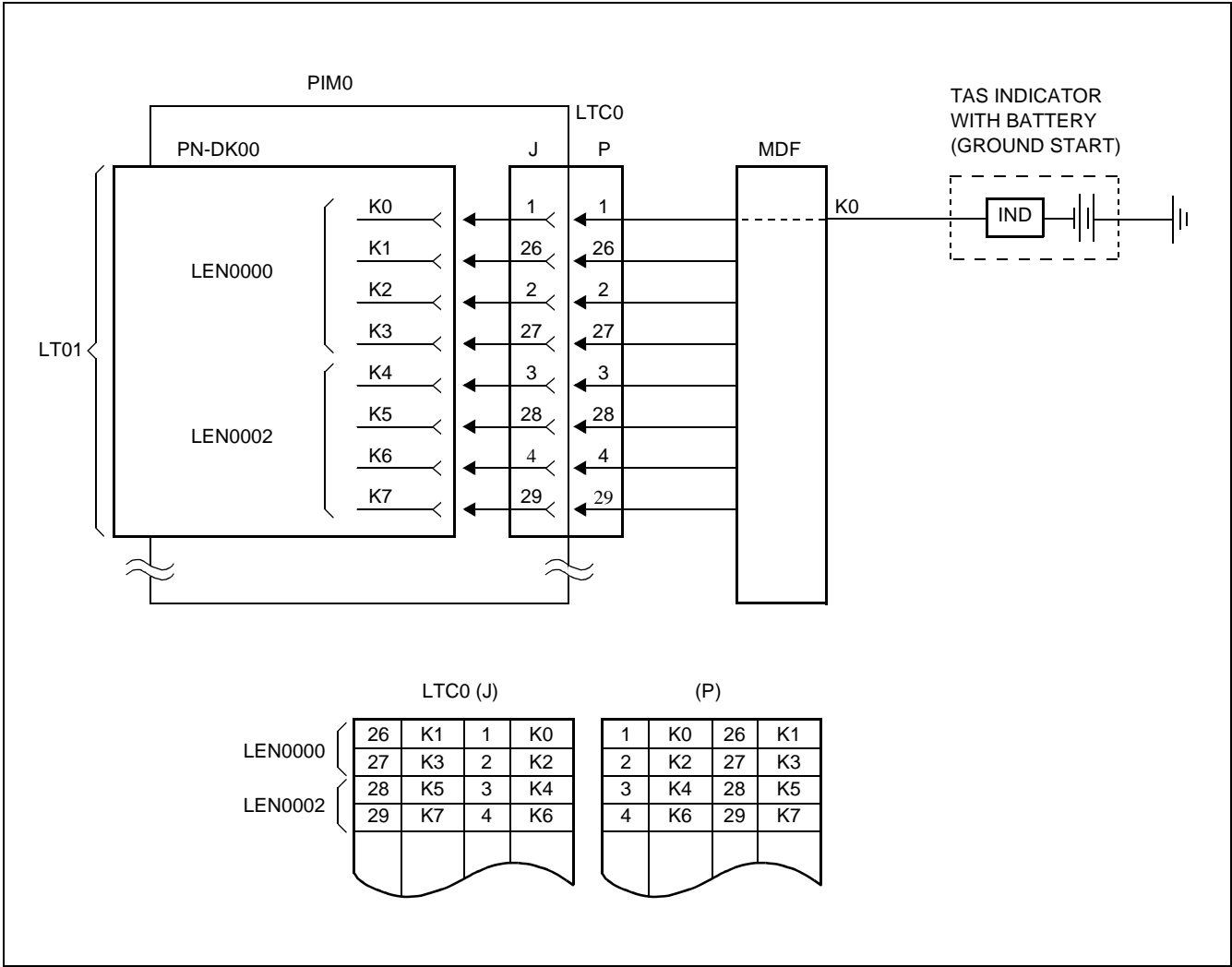
Figure 007-22   MDF Cross Connection for TAS Indicator with Battery (Ground Start)

(9) Paging Equipment

Figure 007-23 and Figure 007-24 show an example of the cross connection for a customer-owned paging equipment.

Requirement for Paging Equipment

- Input Impedance : 600 ohm

- Control Method : Start - Ground Start **Note**
  : Stop - Ground Off (Open)

Note: *The current capacity of relay contact (PN-DK00 card) is 0.125 A.*

(a) Outline of the Connection (see Figure 007-23)
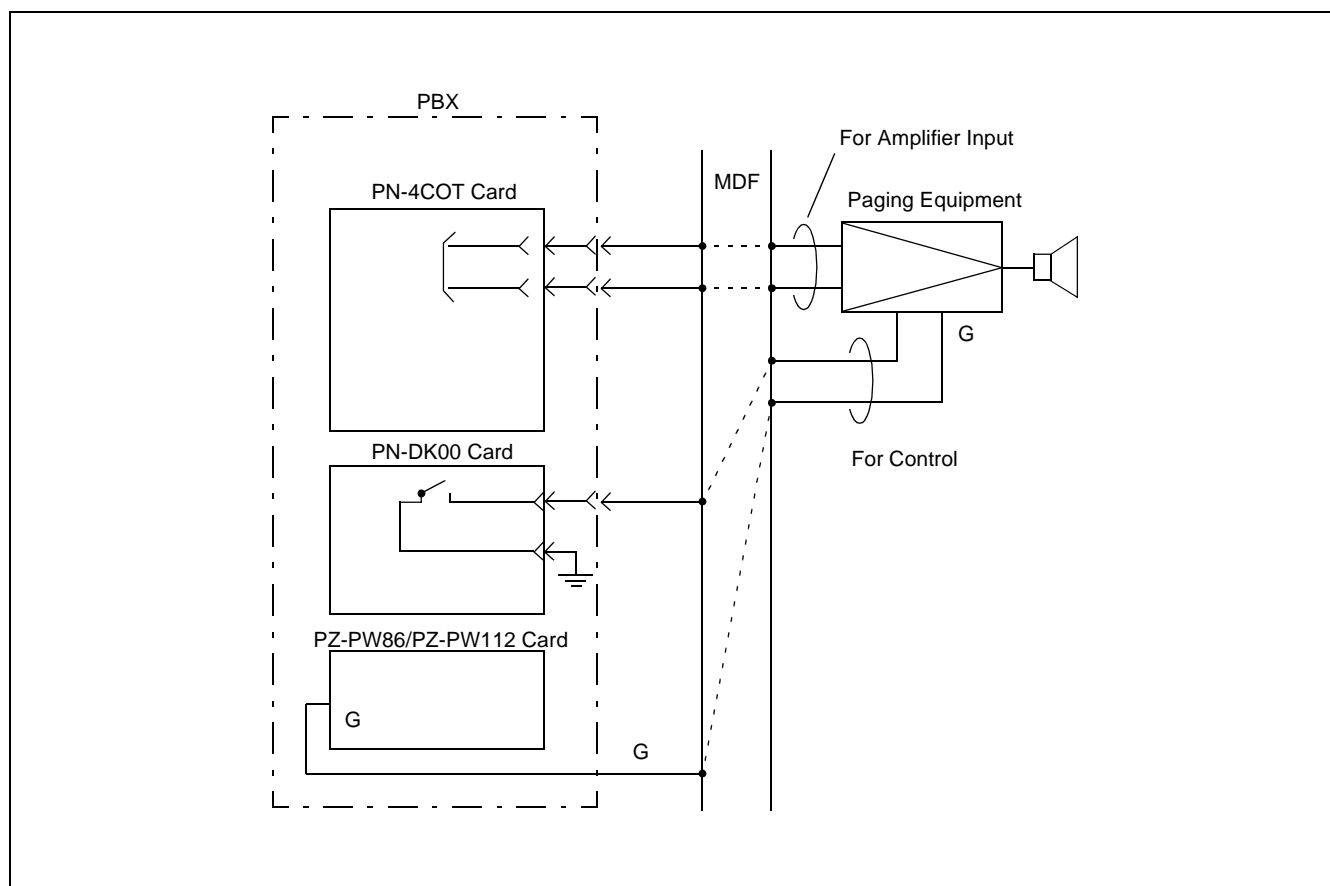
Figure 007-23 Paging Equipment Connection Outline

(b)   MDF Cross Connection (see Figure 007-24)
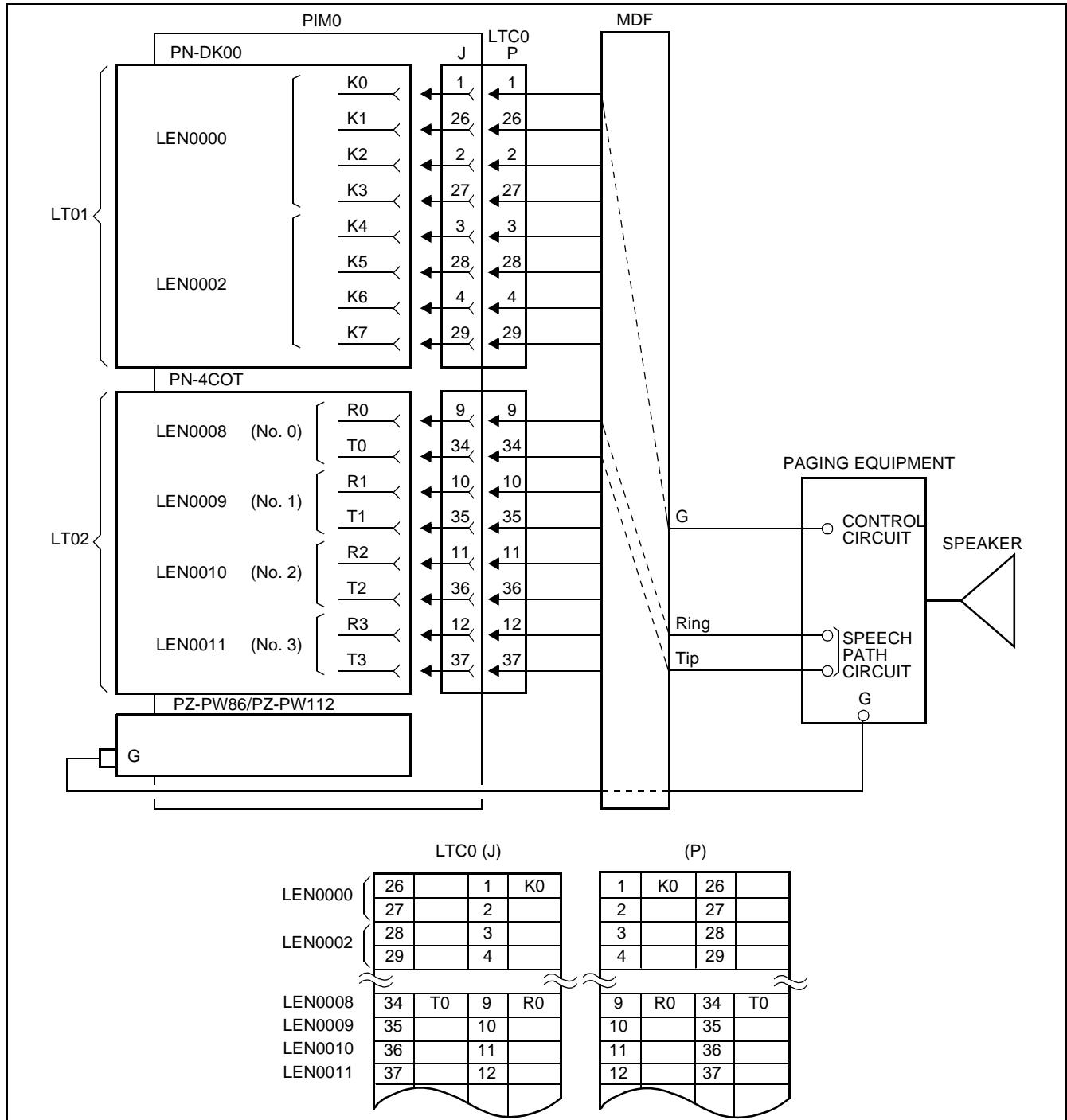
Figure 007-24   MDF Cross Connection for Paging Equipment

(10) External Tone Source Equipment

The cross connection for a customer owned external tone source equipment is shown in Figure 007-25, as an example.

Requirement for External Tone Source Equipment

- Output level : Less than 0 dbm (Adjustable)

- Output impedance : Less than 1 kΩ (When using PN-4COT and PN-DK00)
  : Less than 10 kΩ (When using Pin Jacks on PN-TNTA)

- Control Method : Start - Ground Start **Note 1**
  : Stop - Ground Off (Open)

Note 1: *The current capacity of relay contact (PN-DK00 card) is 0.125 A.*

Note 2: *When connecting the external tone source equipment using the PN-4COT / 8COT and PN-DK00 cards, an appropriate diode must be installed on the MDF, as shown in Figure 007-25.*
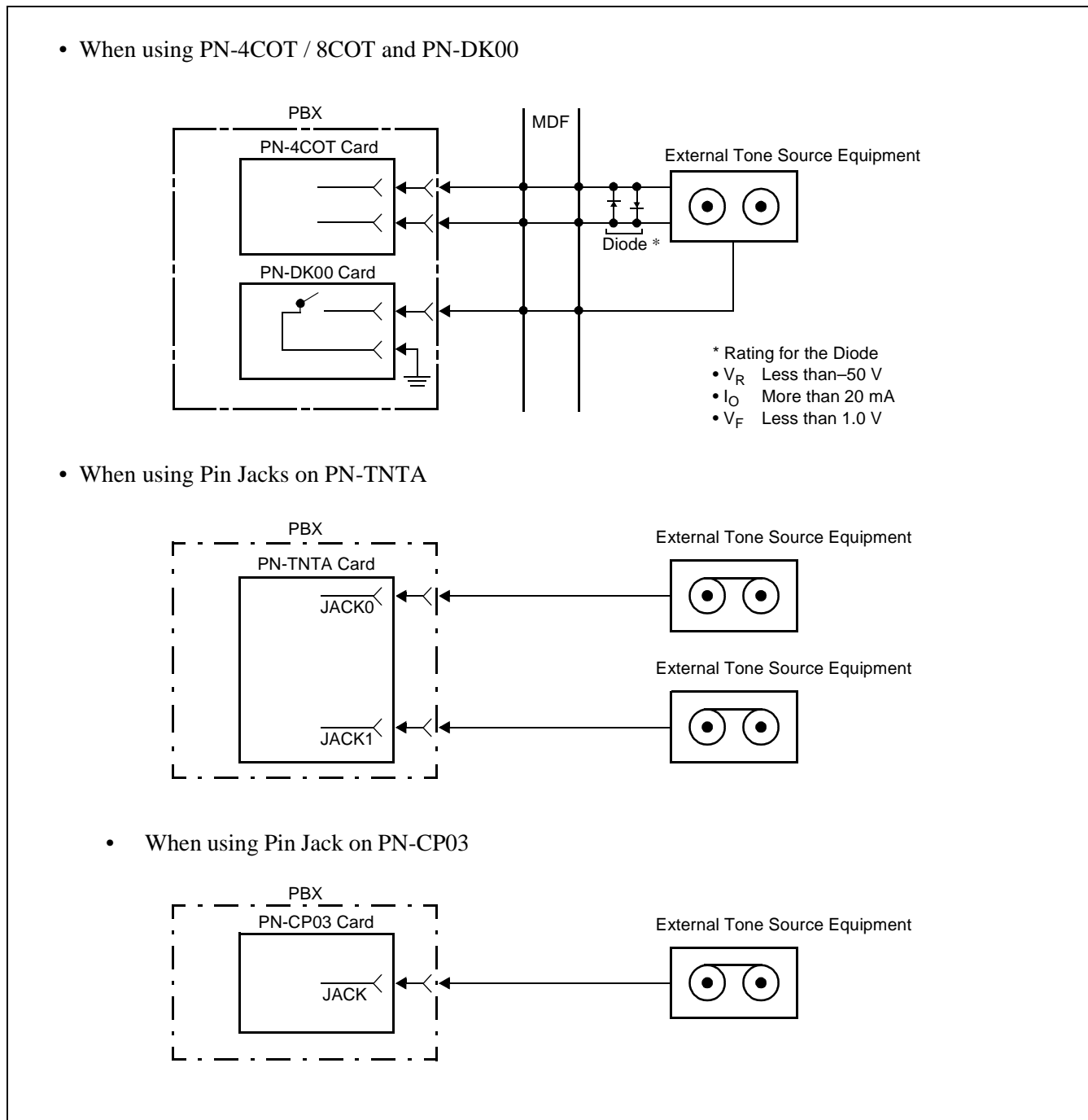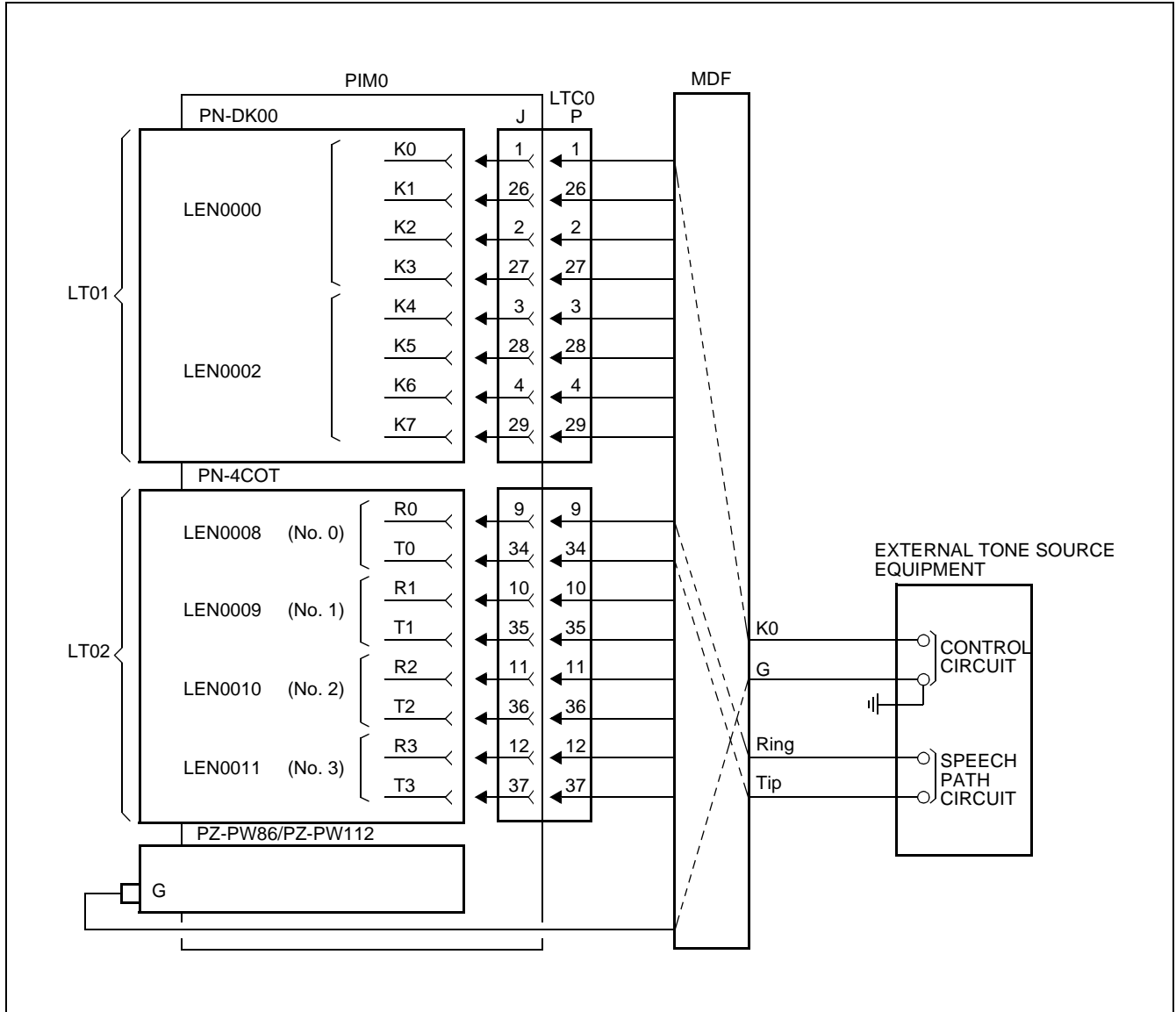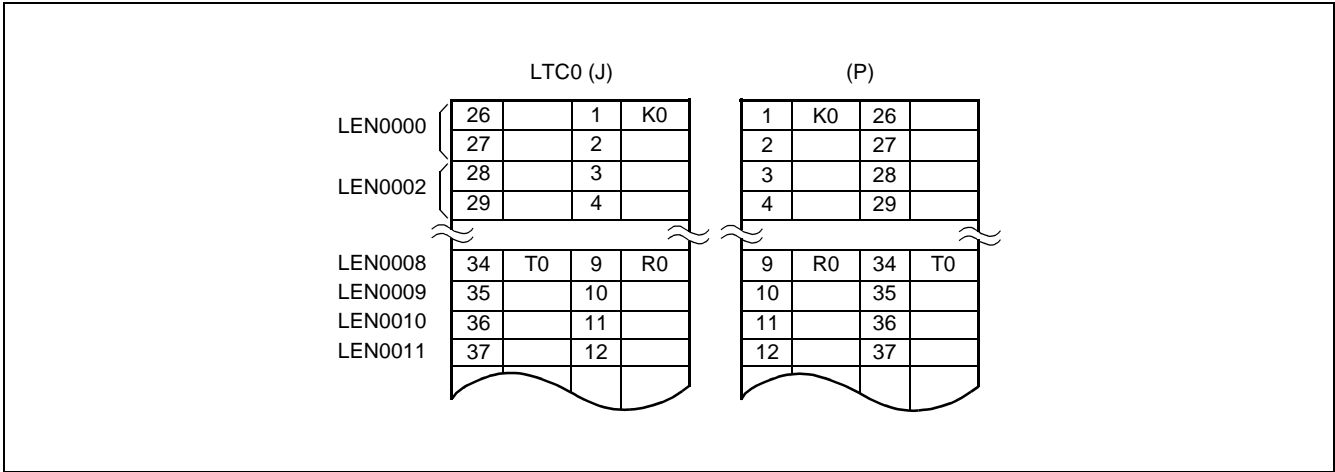
(a) Outline of the Connection (see Figure 007-25)

- When using PN-4COT / 8COT and PN-DK00

PBX

MDF

PN-4COT Card

External Tone Source Equipment

Diode *

PN-DK00 Card

* Rating for the Diode
- V_R Less than–50 V
- I_O More than 20 mA
- V_F Less than 1.0 V

- When using Pin Jacks on PN-TNTA

PBX

PN-TNTA Card

JACK0

External Tone Source Equipment

JACK1

External Tone Source Equipment

- When using Pin Jack on PN-CP03

PBX

PN-CP03 Card

JACK

External Tone Source Equipment

Figure 007-25 External Tone Source Connection Outline

(b)   MDF Cross Connection (see Figure 007-26)

Figure 007-26 MDF Cross Connection for External Tone Source Equipment

	LTC0 (J)				(P)			
LEN0000	26		1	K0	1	K0	26	
	27		2		2		27	
LEN0002	28		3		3		28	
	29		4		4		29	
LEN0008	34	T0	9	R0	9	R0	34	T0
LEN0009	35		10		10		35	
LEN0010	36		11		11		36	
LEN0011	37		12		12		37	

Figure 007-26 MDF Cross Connection for External Tone Source Equipment (Continued)

- If a D.C. voltage is supplied with the tone from the external tone source equipment, a transformer or coupling capacitor should be used as shown in Figure 007-27.
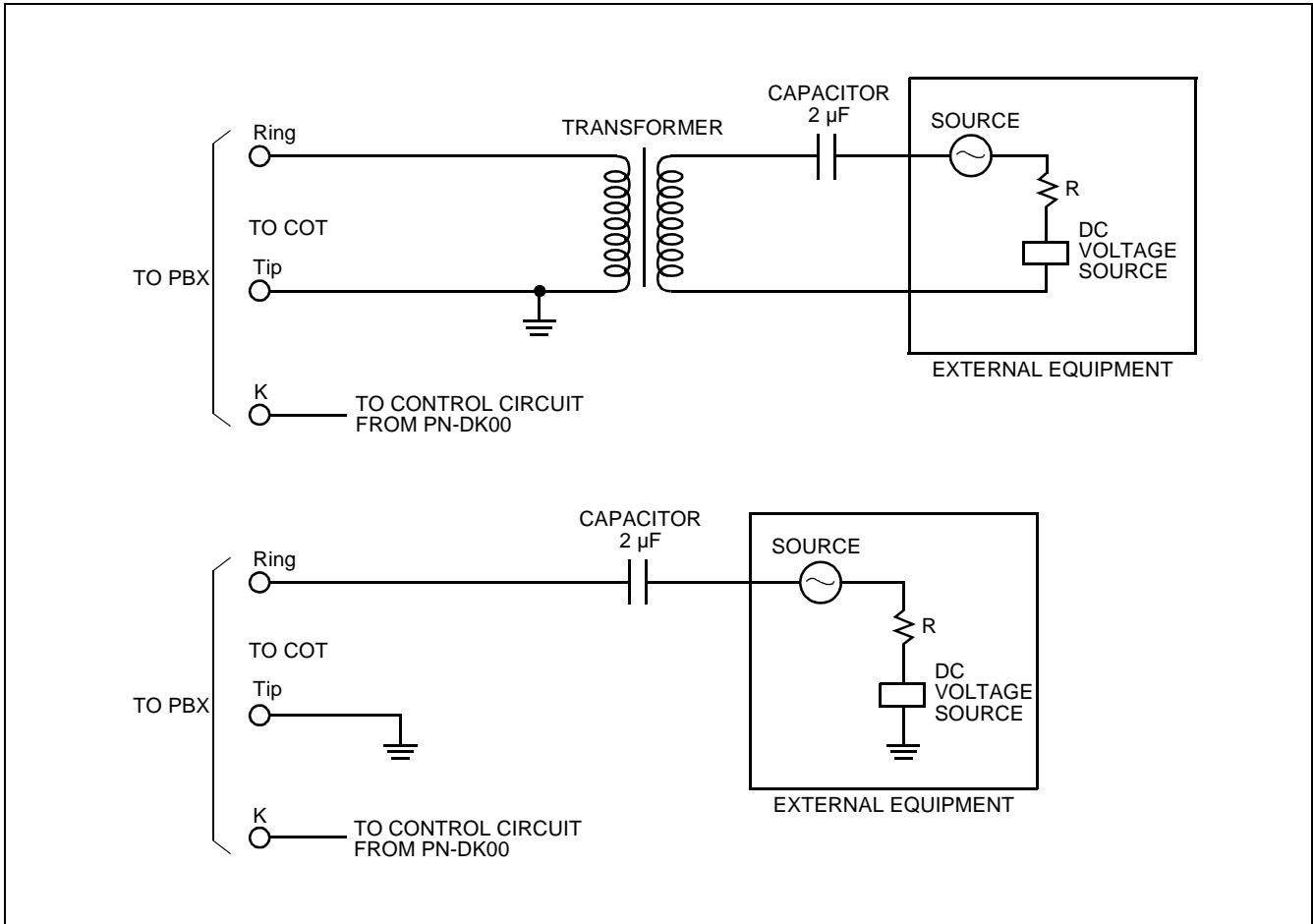
Figure 007-27 Connecting Tone Source Supplied with D.C.

(11) External BGM Source

Figure 007-28 and Figure 007-29 show the cross-connection for customer-owned external BGM sources. The system provides a maximum of 10 BGM sources.
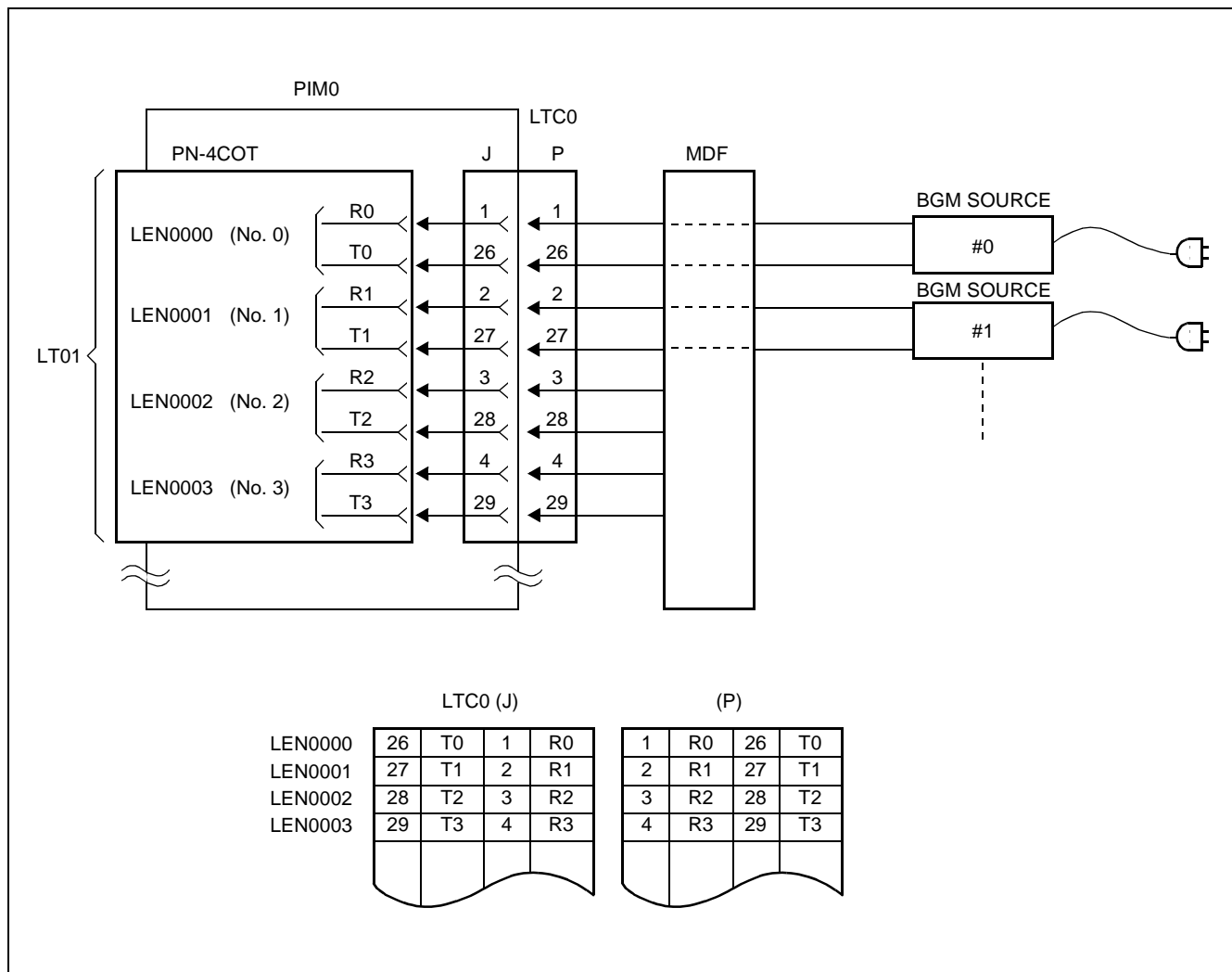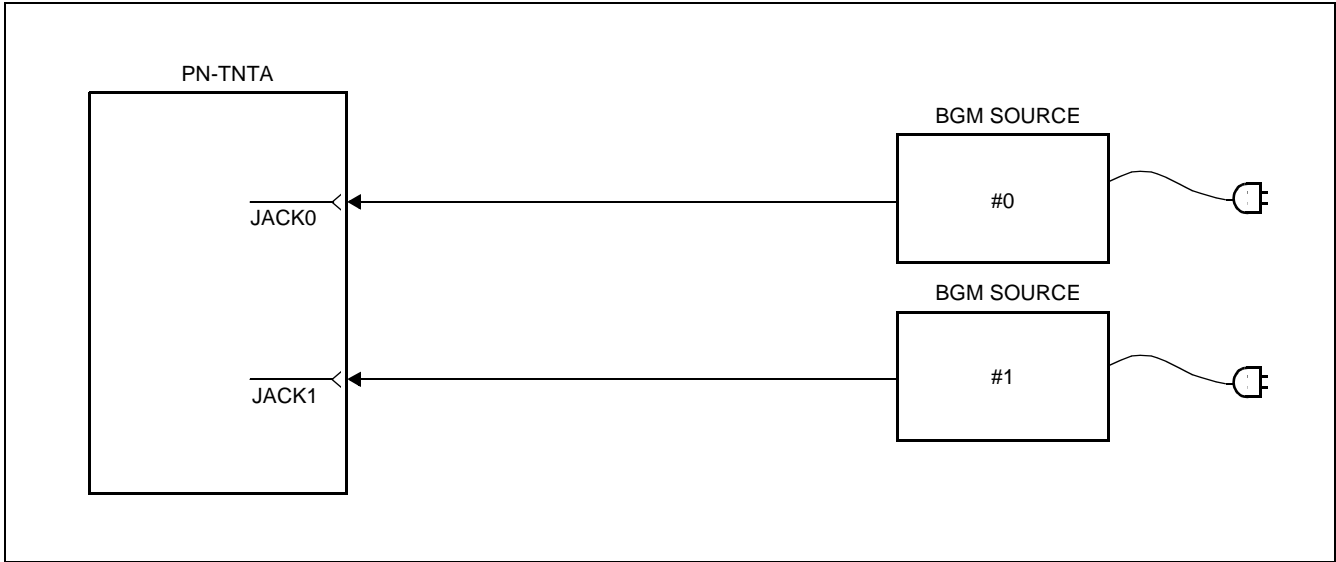
(a) When using PN-4COT (see Figure 007-28)

LTC0 (J)					(P)			
LEN0000	26	T0	1	R0	1	R0	26	T0
LEN0001	27	T1	2	R1	2	R1	27	T1
LEN0002	28	T2	3	R2	3	R2	28	T2
LEN0003	29	T3	4	R3	4	R3	29	T3

Figure 007-28 MDF Cross Connection for External BGM Sources

(b)   When using Pin Jacks on PN-TNTA (see Figure 007-29)

Figure 007-29   Cable Connection Between PN-TNTA and External BGM Sources

(12) Power Failure Transfer (PFT)

The PN-AUCA card or the PZ-8PFTA card can be used as the PFT card.

(a) When using PN-AUCA card

- Figure 007-30 shows an outline of a PFT (PN-AUCA) connection.

- Figure 007-31 shows the MDF cross connection for a PFT (PN-AUCA).
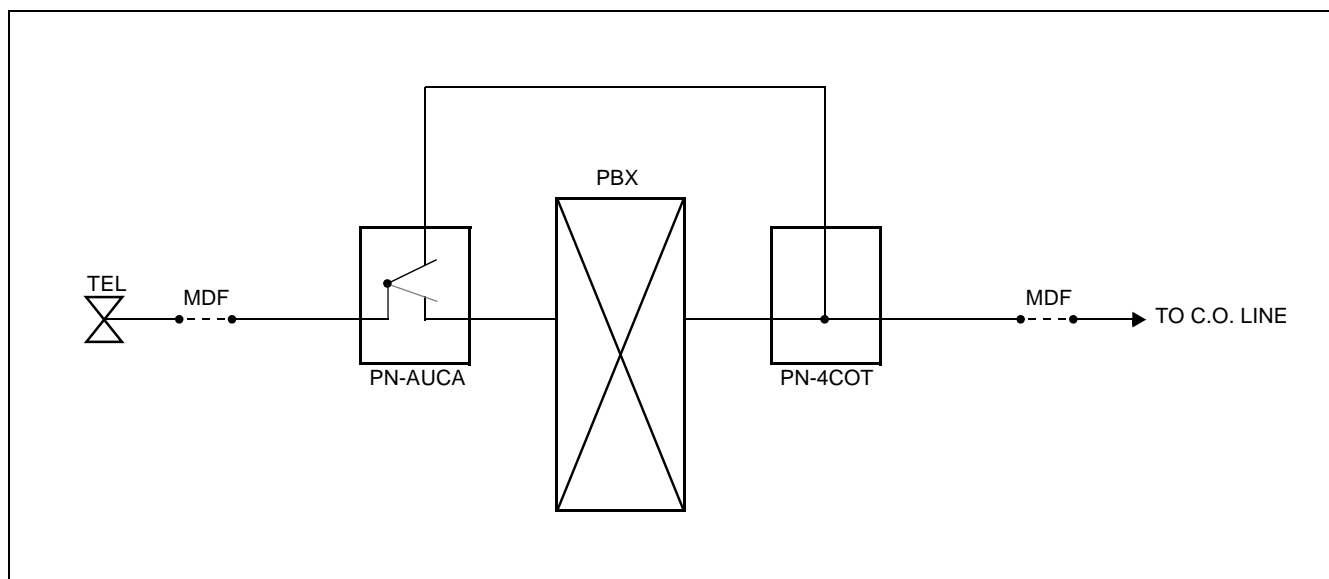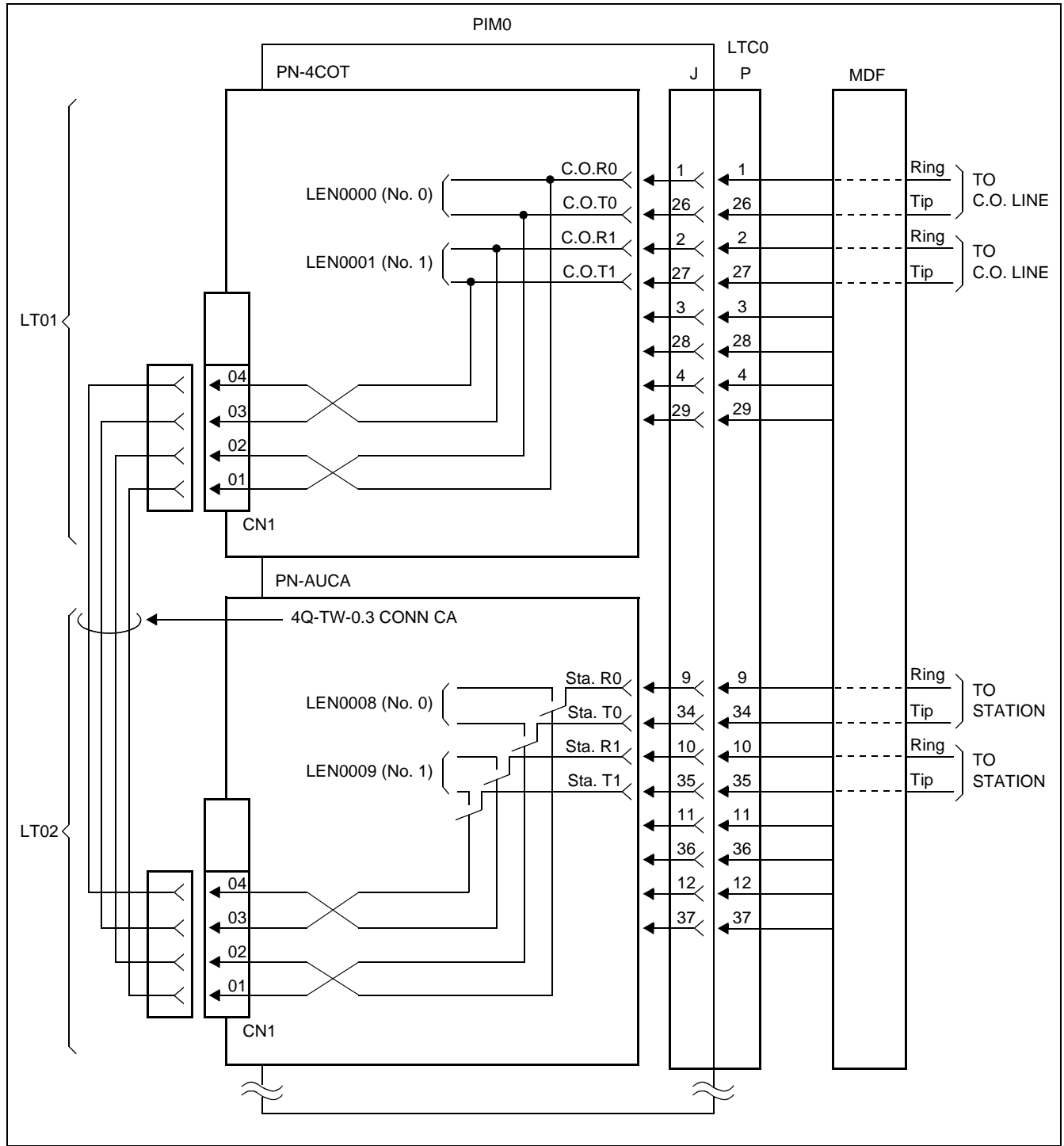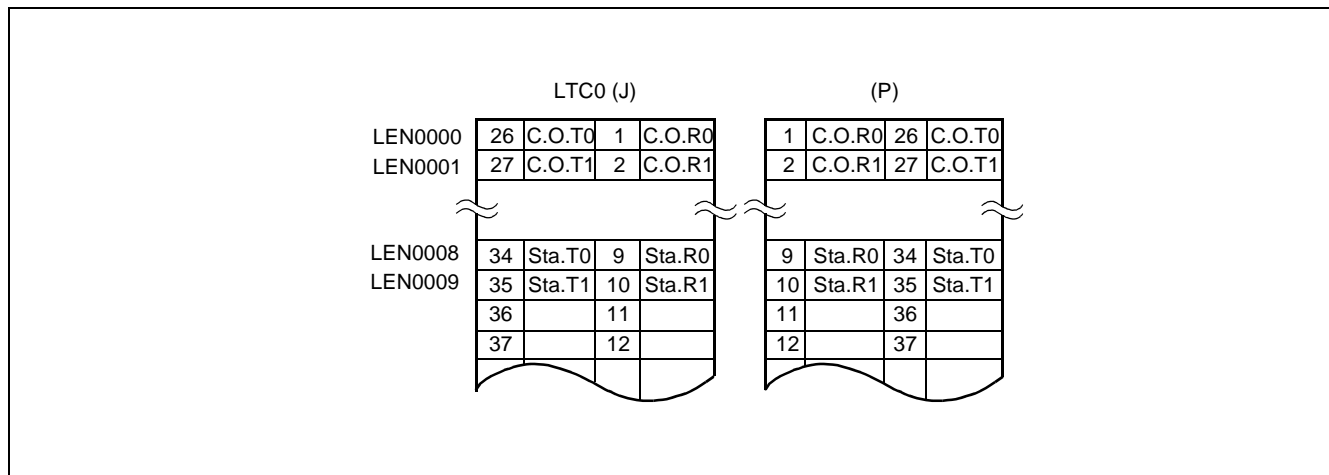

Figure 007-30 PFT Connection Outline

Figure 007-31   MDF Cross Connection for PFT (PN-AUCA)

LTC0 (J)					(P)			
LEN0000	26	C.O.T0	1	C.O.R0		1	C.O.R0	26	C.O.T0
LEN0001	27	C.O.T1	2	C.O.R1		2	C.O.R1	27	C.O.T1
LEN0008	34	Sta.T0	9	Sta.R0		9	Sta.R0	34	Sta.T0
LEN0009	35	Sta.T1	10	Sta.R1		10	Sta.R1	35	Sta.T1
	36		11			11		36	
	37		12			12		37	

Figure 007-31   MDF Cross Connection for PFT (PN-AUCA) (Continued)

Note 1: *The No. 2 and No. 3 circuit in the PN-4COT card can not be used with the PFT function.*

Note 2: *When using Ground Start trunks with the PFT function, the single line stations must have a ground sending button and a ground lead must be run to the station.*
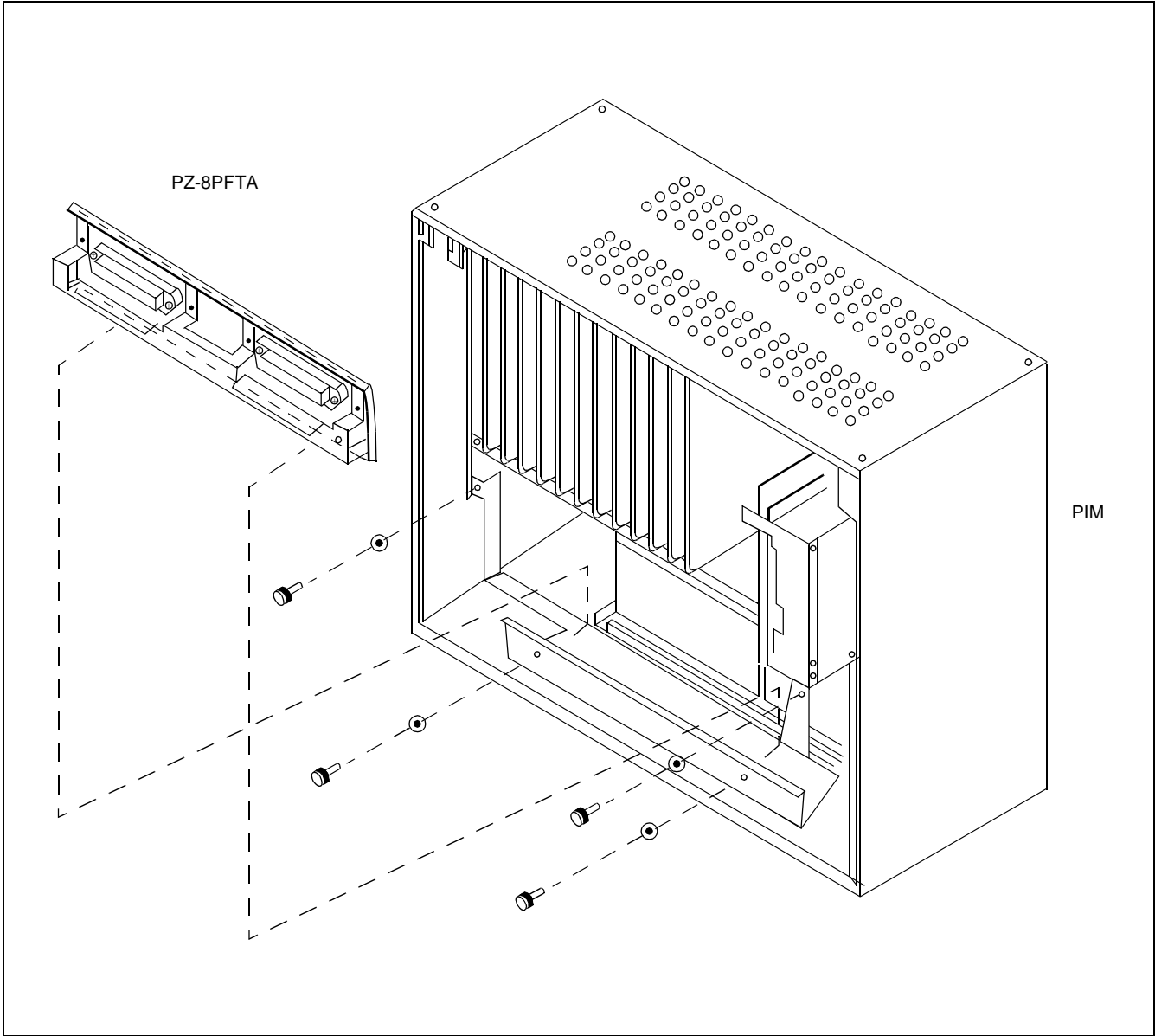
(b) When using PZ-8PFTA card

- Figure 007-32 shows an outline of a PFT (PZ-8PFTA) connection.
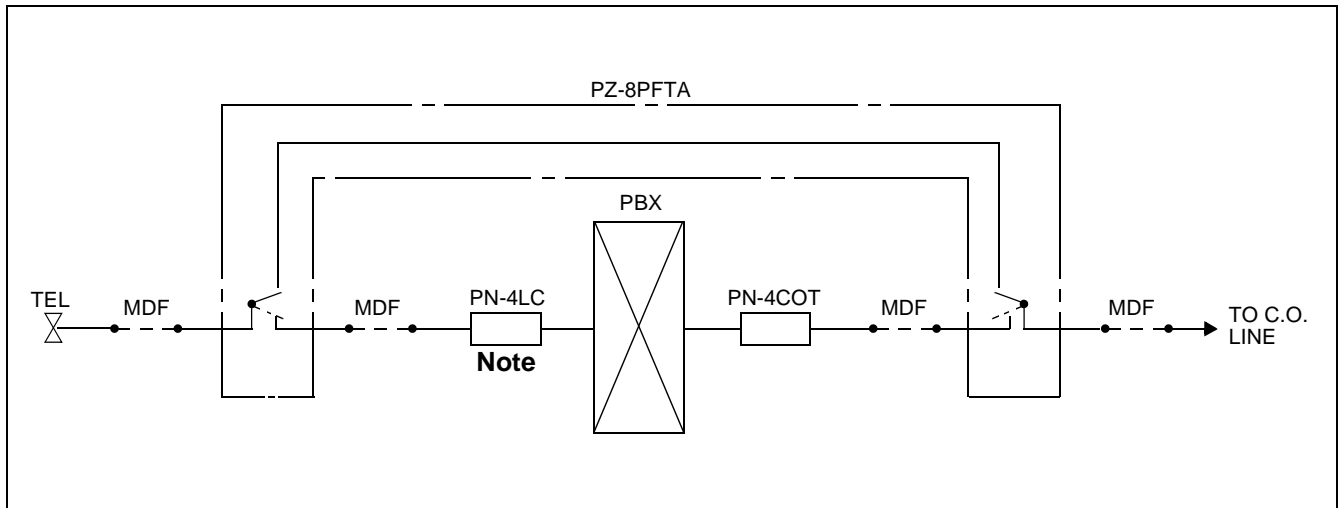
Figure 007-32   PFT (PZ-8PFTA) Connection Outline

Note: *Using the PN-AUCA card (long line card) instead of the PN-4LC card is not recommended due to the variations from Central Office to the PBX; line quality cannot be assured.*

STEP 1: Mount the PFT bracket to the PIM as indicated in Figure 007-33. Then, insert the PZ-8PFTA card into the mounting bracket and secure it the screws provided.
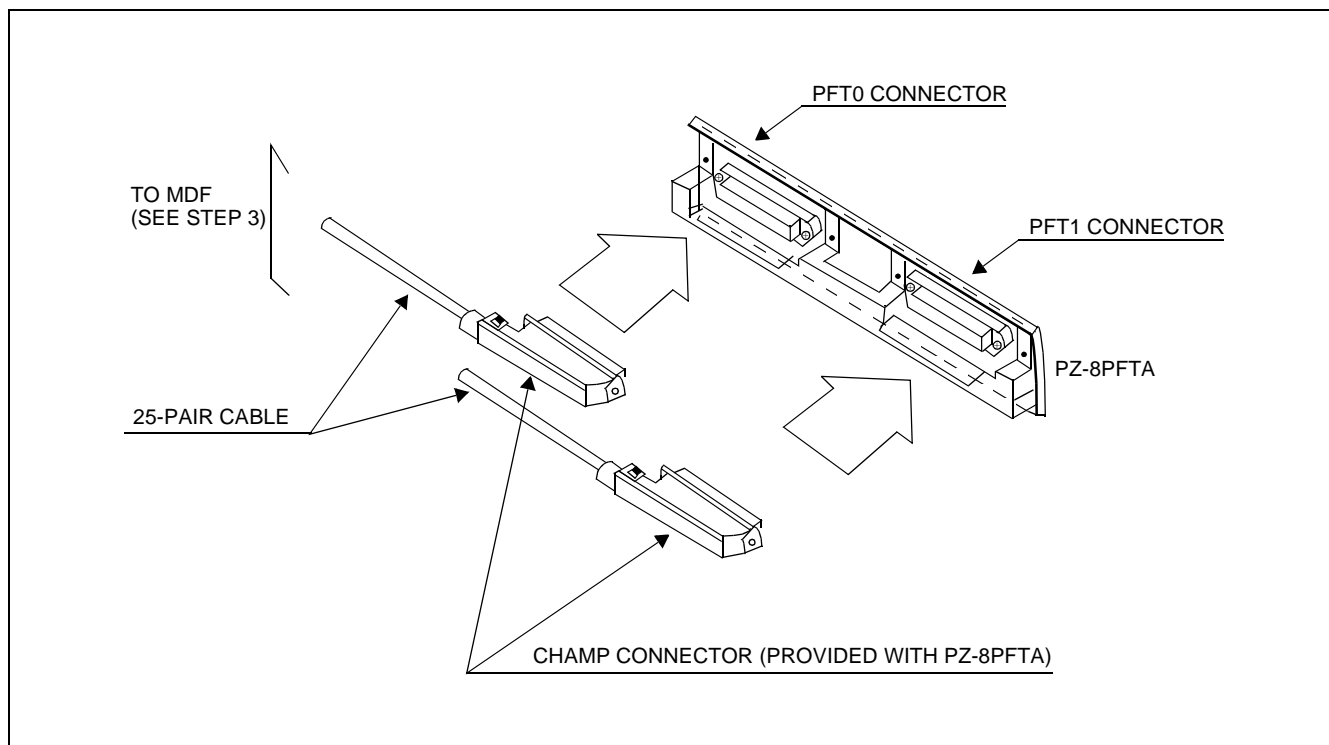

Figure 007-33 Mounting PZ-8PFTA Card to PIM

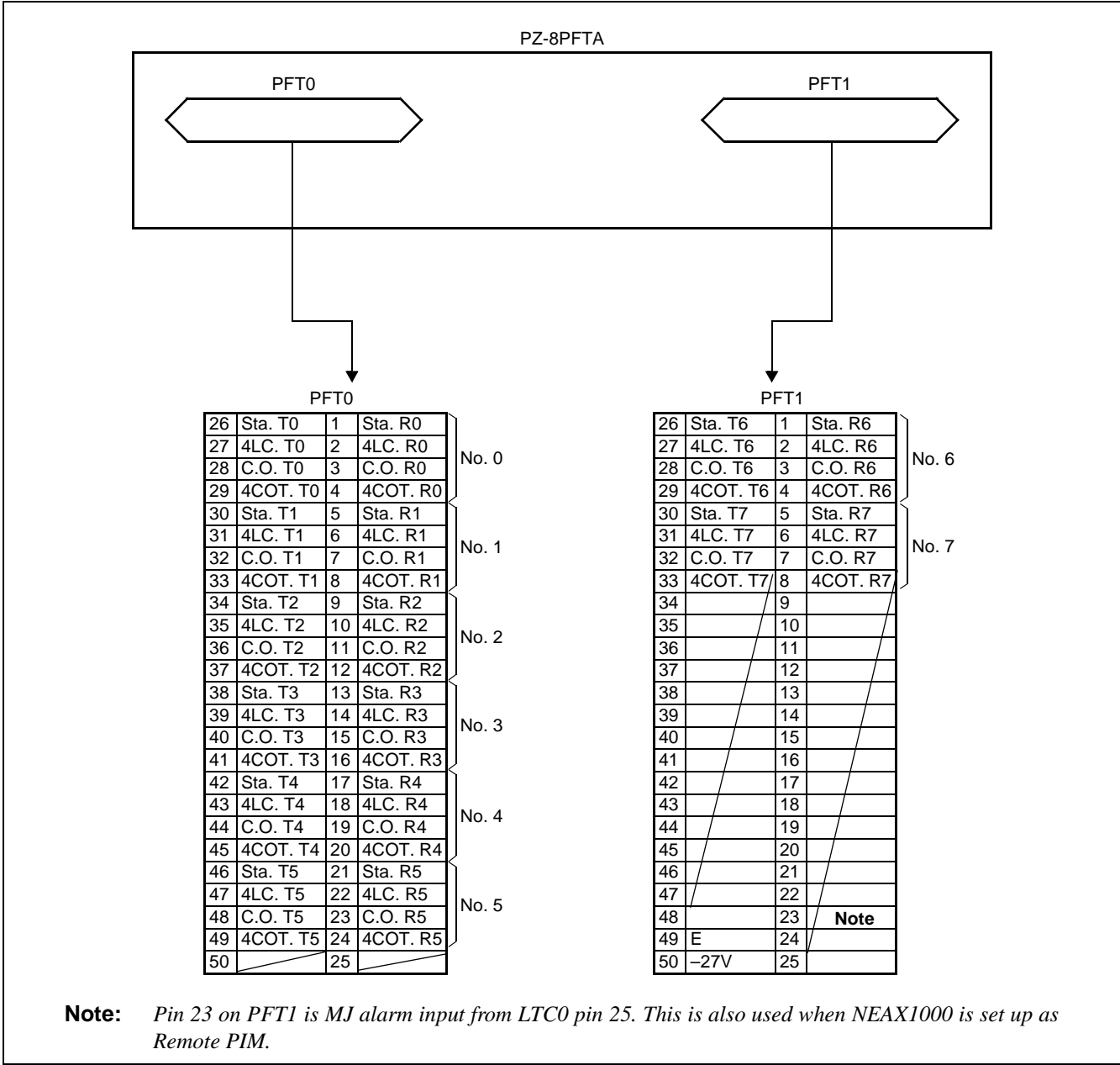- Install the PZ-8PFTA card to the PIM according to the following steps.

STEP 2: Connect the champ connectors of 25-pair cables to the PFT0 and PFT1 connectors on the PZ-8PFTA card as shown in Figure 007-34. Then, secure them to each other using screws and tie wraps.

Figure 007-34   Connection of 25-Pair Cable and PZ-8PFTA

STEP 3: Connect the 25-pair cables on the MDF referring Figure 006-34 and Figure 006-35.

- Figure 007-35 shows the PFT connector pin assignment for each PFT circuit number (No. 0 - No. 7).

Note: *Pin 23 on PFT1 is MJ alarm input from LTC0 pin 25. This is also used when NEAX1000 is set up as Remote PIM.*

Figure 007-35 PFT Connector Pin Assignment

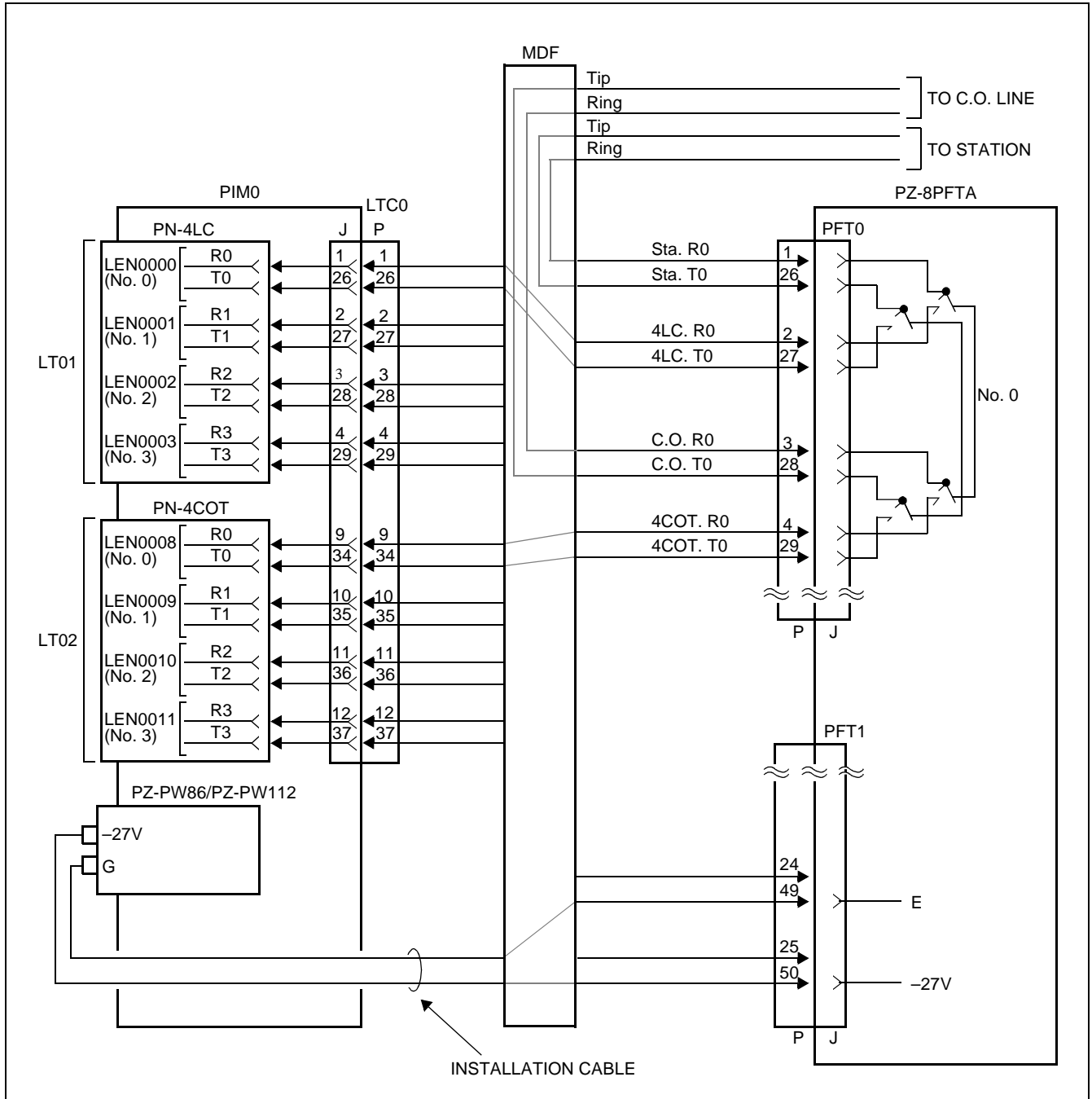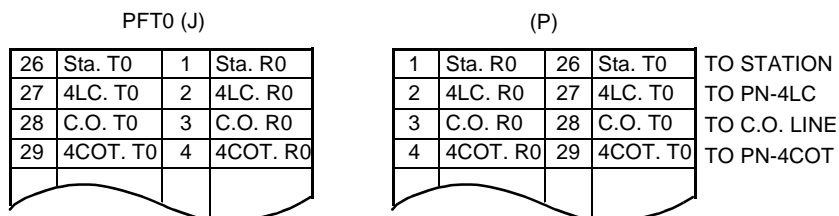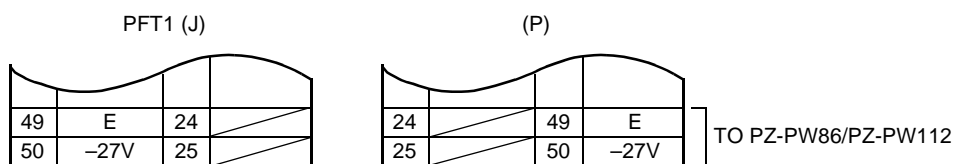- Figure 007-36 shows the MDF cross connection for the No. 0 circuit on the PFT (PZ-8PFTA), as an example.

Figure 007-36   MDF Cross Connection for PFT (PZ-8PFTA)

① PFT0 CONNECTOR

PFT0 (J)

26	Sta. T0	1	Sta. R0
27	4LC. T0	2	4LC. R0
28	C.O. T0	3	C.O. R0
29	4COT. T0	4	4COT. R0

(P)

1	Sta. R0	26	Sta. T0	TO STATION
2	4LC. R0	27	4LC. T0	TO PN-4LC
3	C.O. R0	28	C.O. T0	TO C.O. LINE
4	4COT. R0	29	4COT. T0	TO PN-4COT

② PFT1 CONNECTOR

PFT1 (J)

49	E	24	
50	−27V	25	

(P)

24		49	E
25		50	−27V

TO PZ-PW86/PZ-PW112

③ LTC0 CONNECTOR

LTC0 (J)

LEN0000

26	T0	1	R0
27		2	
28		3	
29		4	

LEN0008

34	T0	9	R0
35		10	
36		11	
37		12	

(P)

1	R0	26	T0	TO PZ-8PFTA
2		27		
3		28		
4		29		

9	R0	34	T0	TO PZ-8PFTA
10		35		
11		36		
12		37		
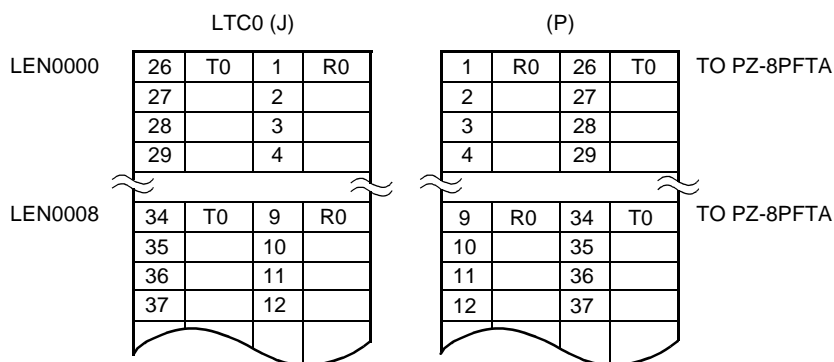
Figure 007-36   MDF Cross Connection for PFT (PZ-8PFTA) (Continued)

(13) Alarm Display Panel

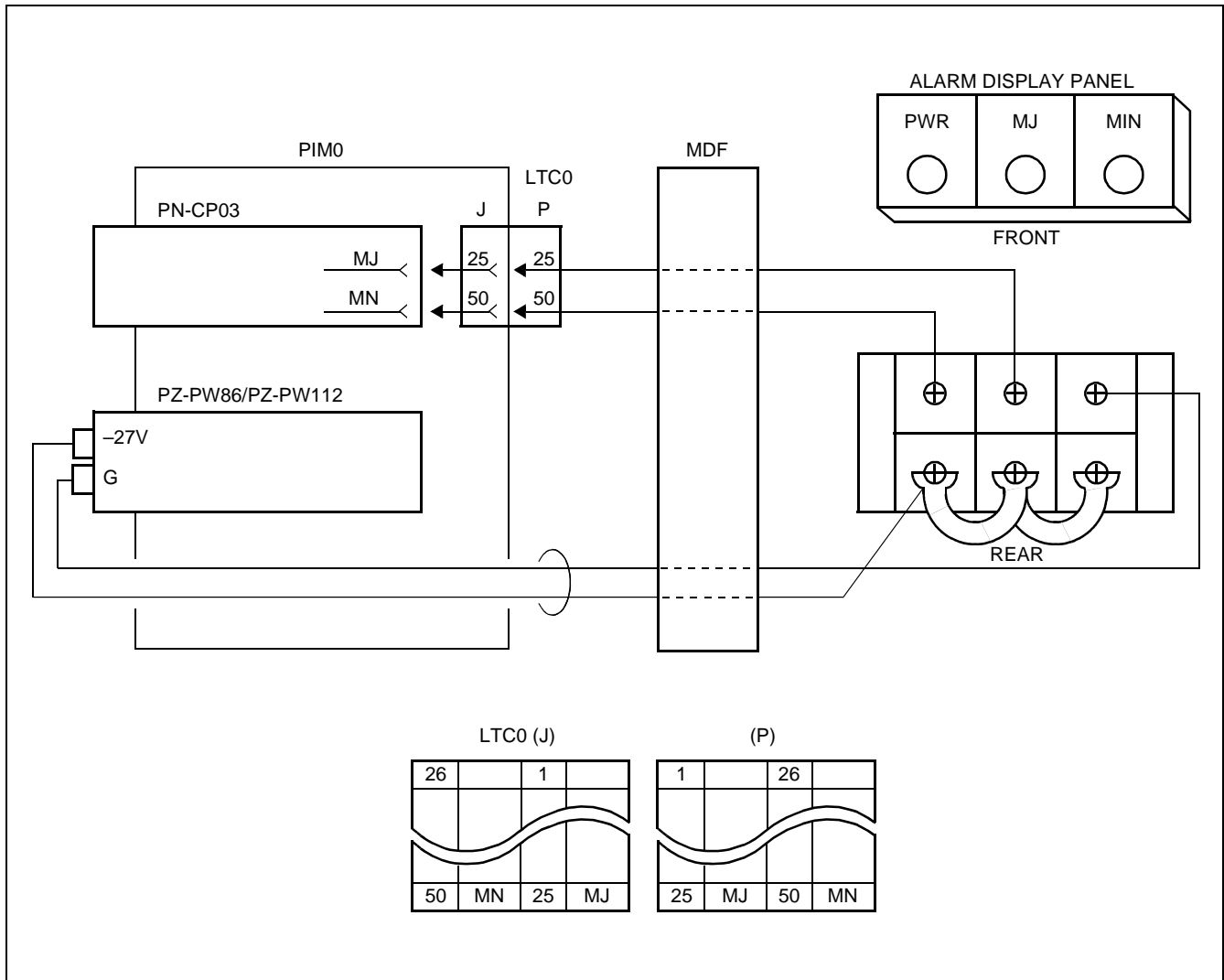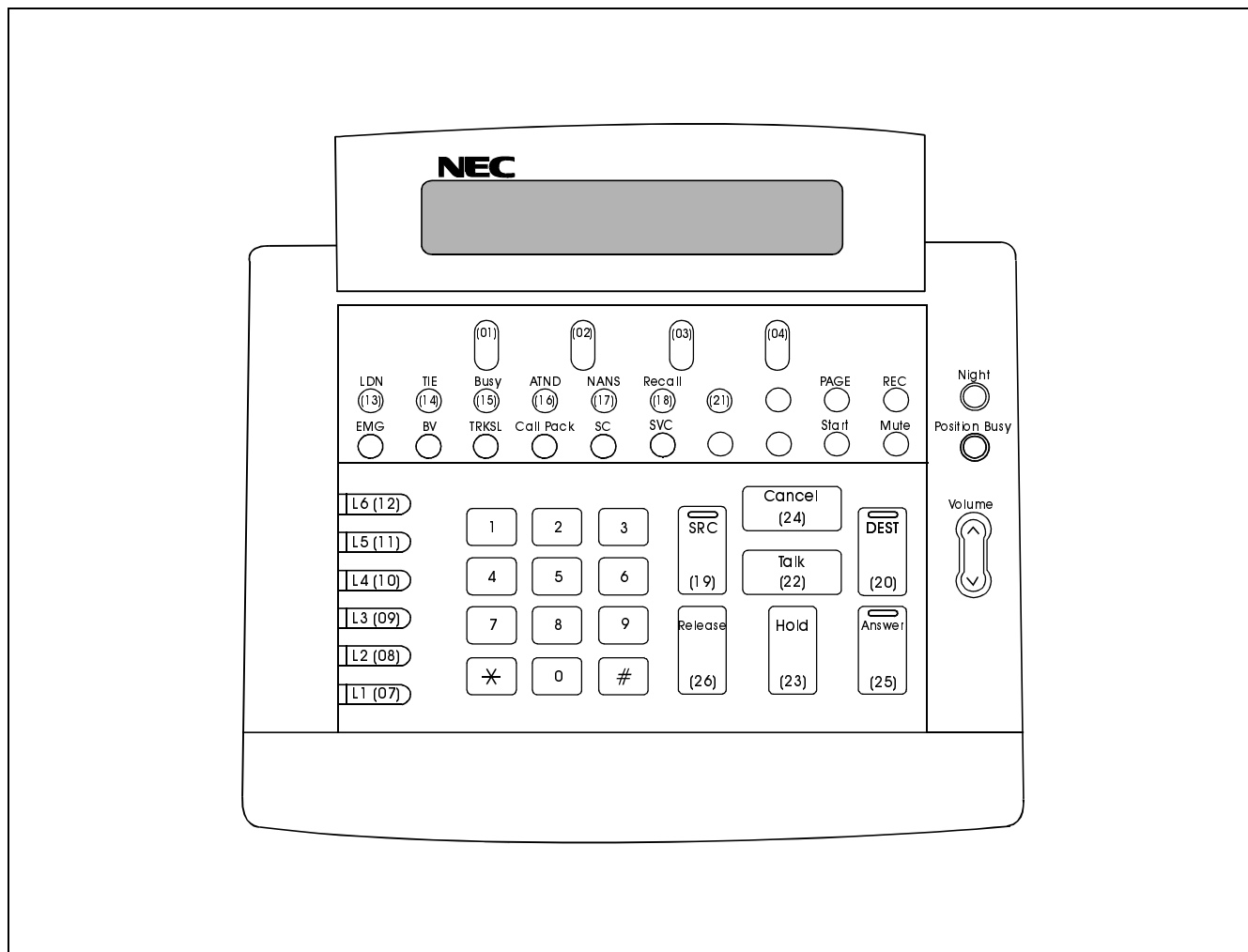Figure 007-37 shows the cross connection for an Alarm Display Panel.

Figure 007-37   MDF Cross Connection for Alarm Display Panel
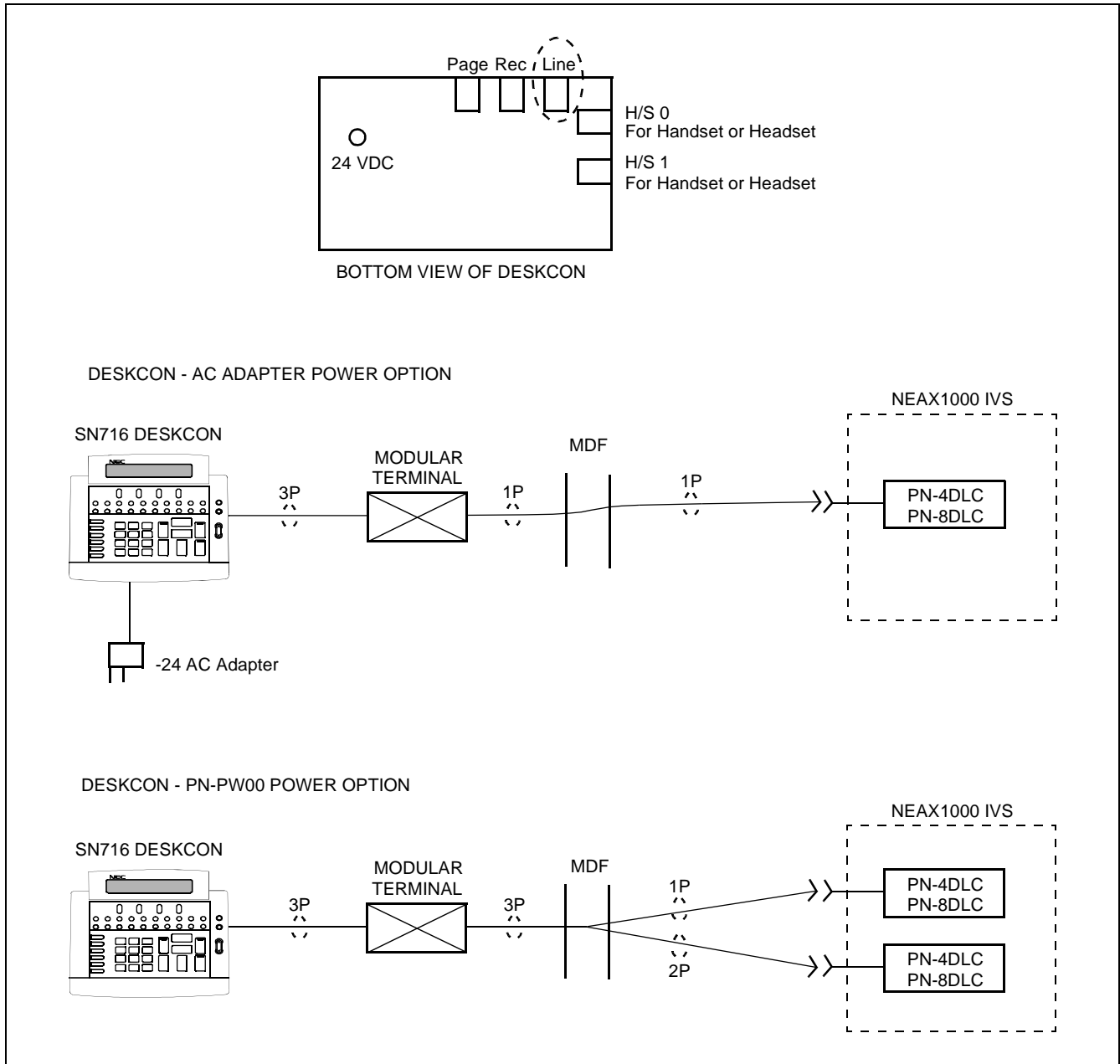
(14) SN716 DESKCON

    (a)   Installation of SN716 DESKCON (see Figure 007-38)

<u>STEP 1</u>:   Unpack and assemble SN716 DESKCON.

Figure 007-38 Assembly of SN716 DESKCON

STEP 2: Plug the line cord from the modular jack into the modular jack located on the bottom of the DESKCON, labeled "Line". This interface is a 6 conductor (3 pair), modular jack. The inner 1 pair is for signal and the outer 2 pairs are for power supply (when connected via PN-PW00). See Figure 007-39.

Figure 007-39   SN716 DESKCON Cable Connection

(b) MDF Cross Connection with AC Adapter Power Option (see Figure 007-40)
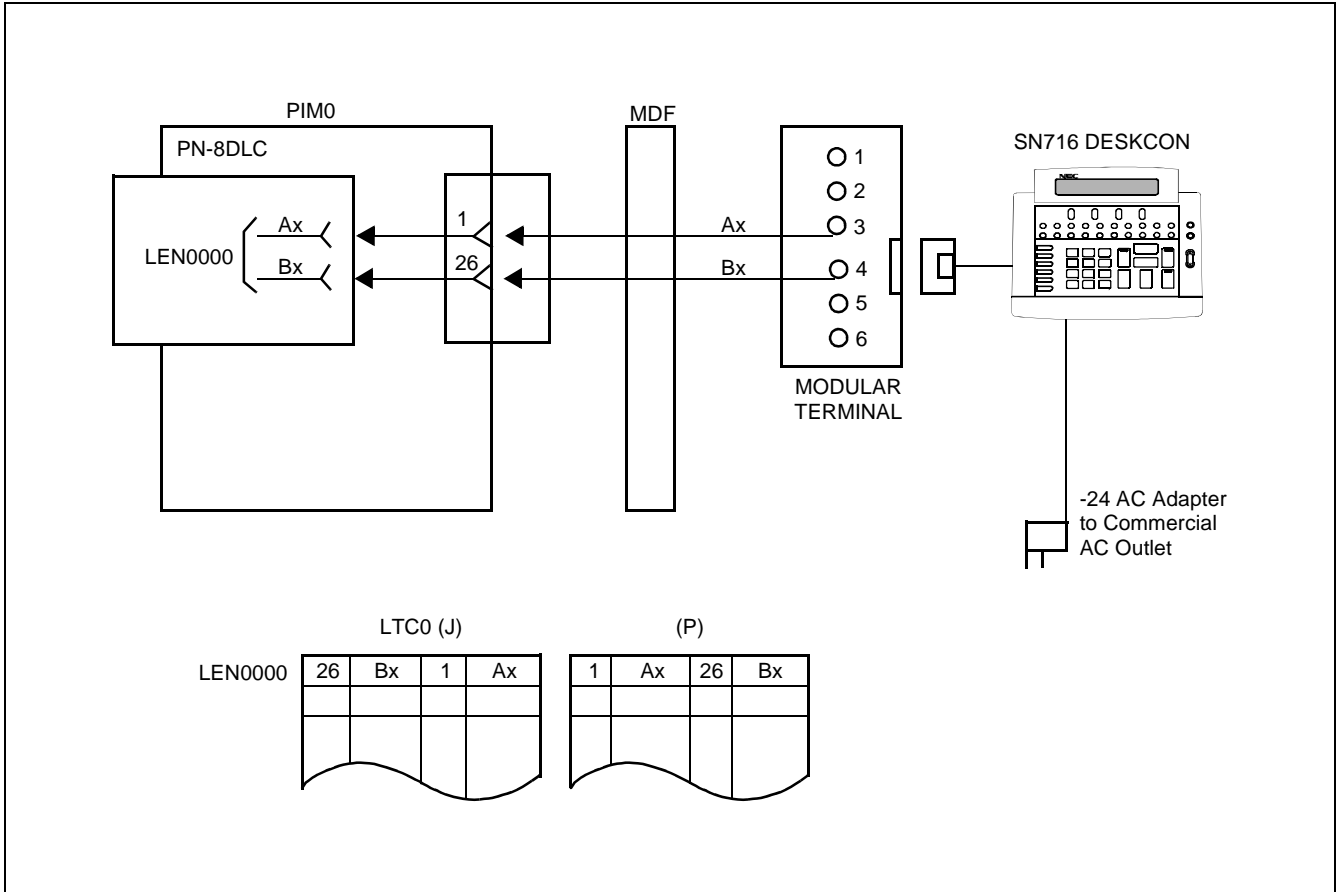
Figure 007-40   MDF Cross Connection with AC Adapter Power Option

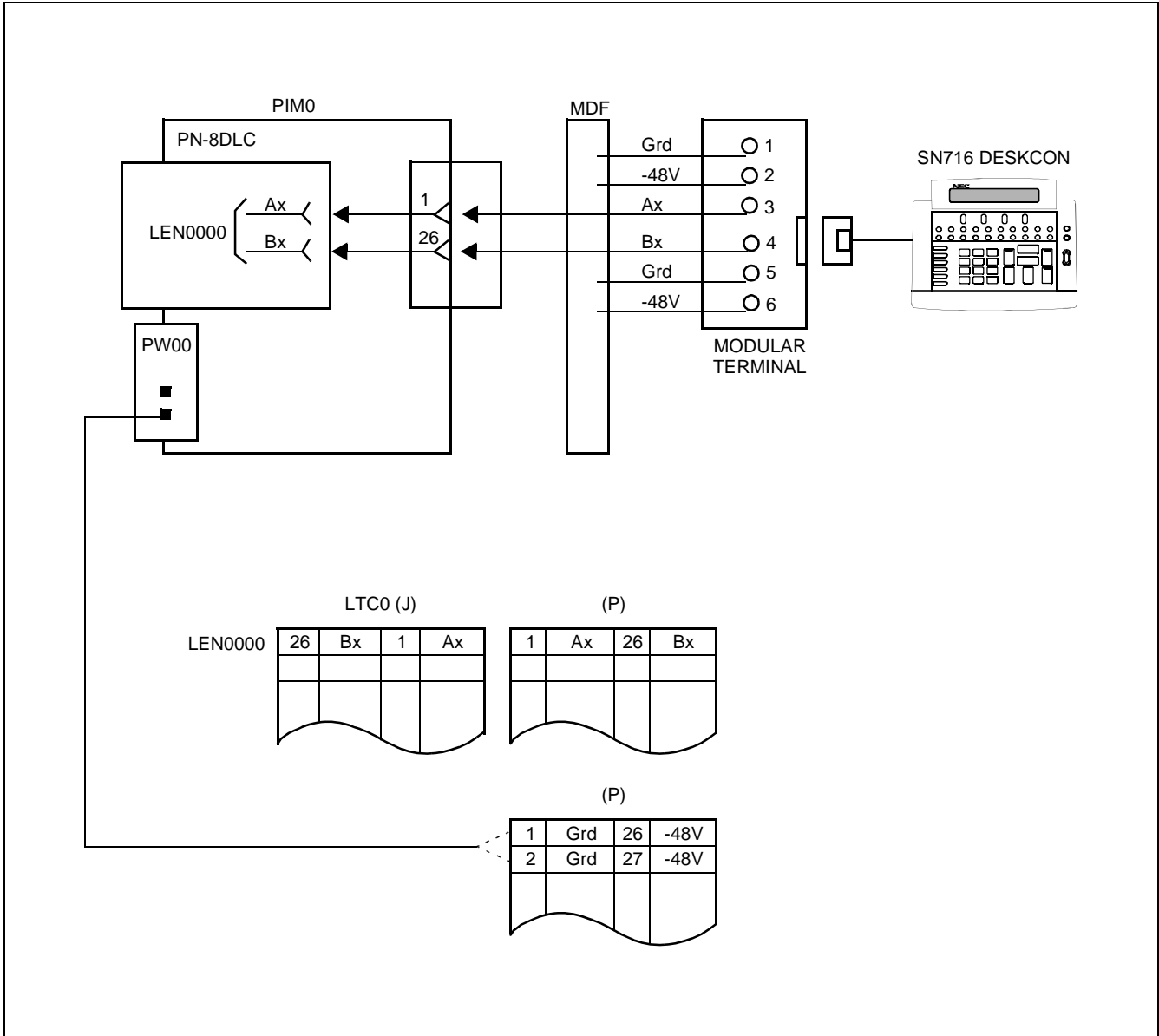(c) MDF Cross Connection via PN-PW00 Power Option (see Figure 007-41)

Figure 007-41 MDF Cross Connection via PN-PW00 Power Option

(15) Single Line Device Interface - Recommended Method

The NEAX1000 does not provide Ring Generator Voltage or Message Waiting light supply. An external Ring Generator may be installed, but there is no connector for interfacing a Message Waiting power supply. It is therefore recommended that single line devices be interfaced to the system via Analog Port Adapters with Ring, which are operating in Dual Port Mode. See Figure 007-42. When provided with optional external Ring Generator, ensure that connection to output terminals of Ring Generator are in accordance with National Electrical Code. Ring Generator shall be a UL-listed type.
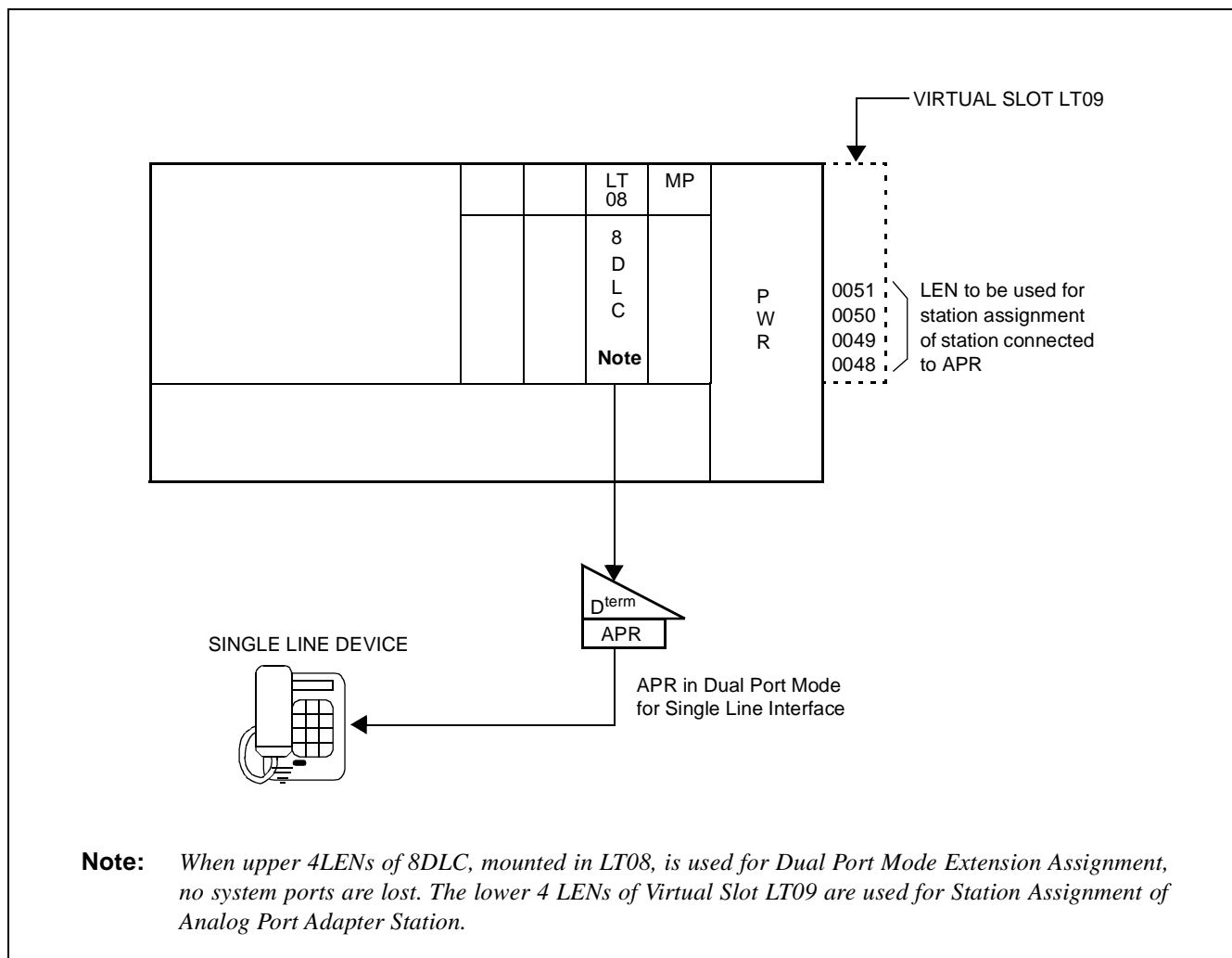

Note: *When upper 4LENs of 8DLC, mounted in LT08, is used for Dual Port Mode Extension Assignment, no system ports are lost. The lower 4 LENs of Virtual Slot LT09 are used for Station Assignment of Analog Port Adapter Station.*

Figure 007-42 Single Line Device Interface

(16) Message Center Interface Connection for VM00 to AP00 (see Figure 007-43)

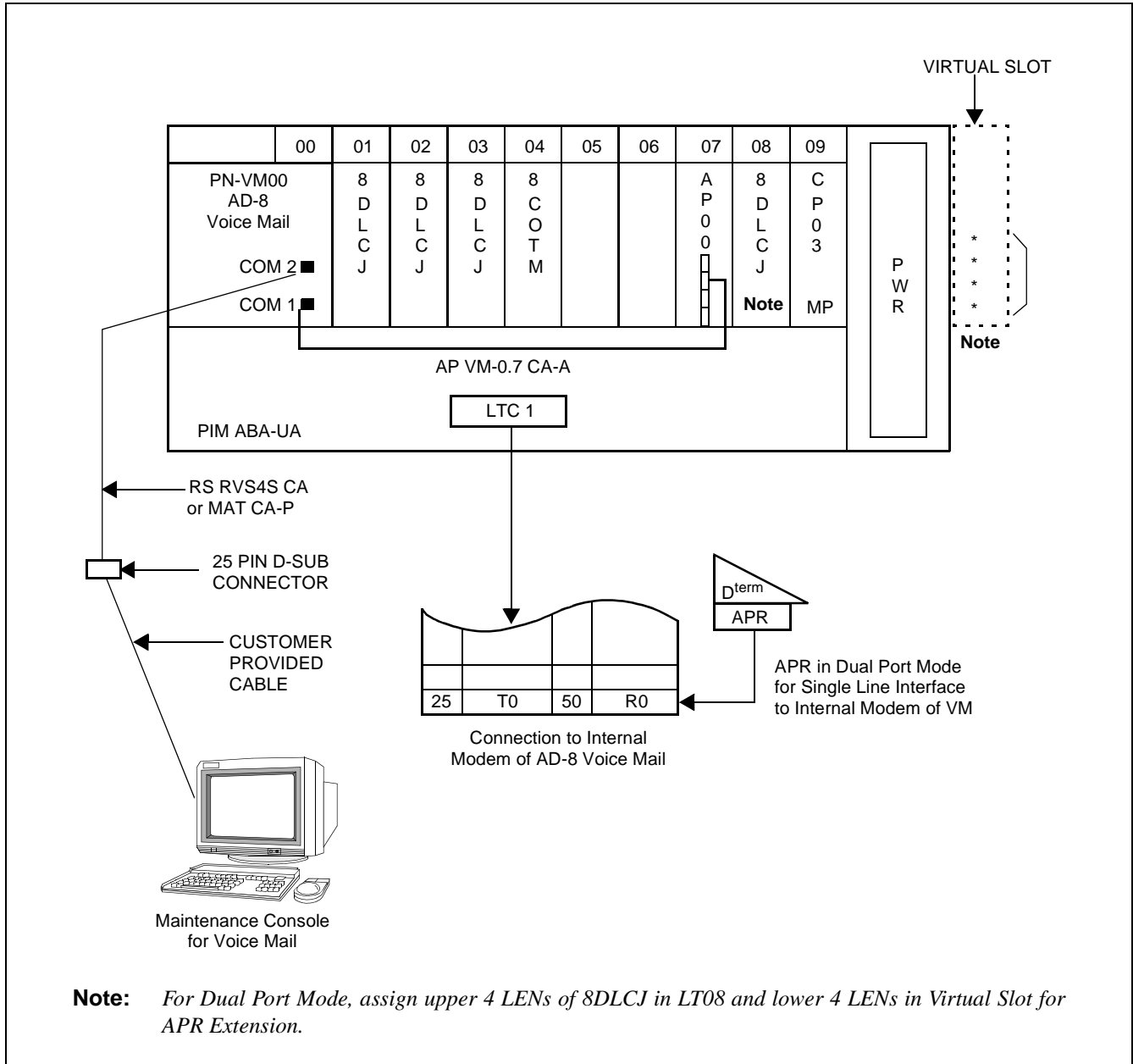**Note:** *For Dual Port Mode, assign upper 4 LENs of 8DLCJ in LT08 and lower 4 LENs in Virtual Slot for APR Extension.*

Figure 007-43 Message Center Interface Connection for VM00 to AP00

1. CIRCUIT CARDS SWITCH SETTING

Table 008-1 shows the control circuit cards and Table 008-2 shows the line/trunk circuit cards. This NAP provides information on each of these cards. As for the other circuit cards, refer to the Circuit Card Manual.

Table 008-1 Control Circuit Cards

NAME (FUNCTIONAL NAME)	EXISTENCE OF LAMPS X: PROVIDED —: NOT PROVIDED	EXISTENCE OF SWITCHES X: PROVIDED —: NOT PROVIDED	EXTRACTION/INSERTION WITH POWER ON X: ALLOWED —: NOT ALLOWED
PN-CP03 (MP)	X	X	—
PZ-PW86 (PWR)	X	X	—
PZ-PW112 (PWR)	X	X	—

Table 008-2 Line/Trunk Circuit Cards

NAME (FUNCTIONAL NAME)	EXISTENCE OF LAMPS X: PROVIDED —: NOT PROVIDED	EXISTENCE OF SWITCHES X: PROVIDED —: NOT PROVIDED	EXTRACTION/INSERTION WITH POWER ON X: ALLOWED —: NOT ALLOWED
PN-8DLC (DLC)	X	—	X
PN-8COT (COT)	X	—	X

2. PN-CP03 (MP)

(1) Locations of Lamps, Switches, and Connectors (see Figure 008-1)
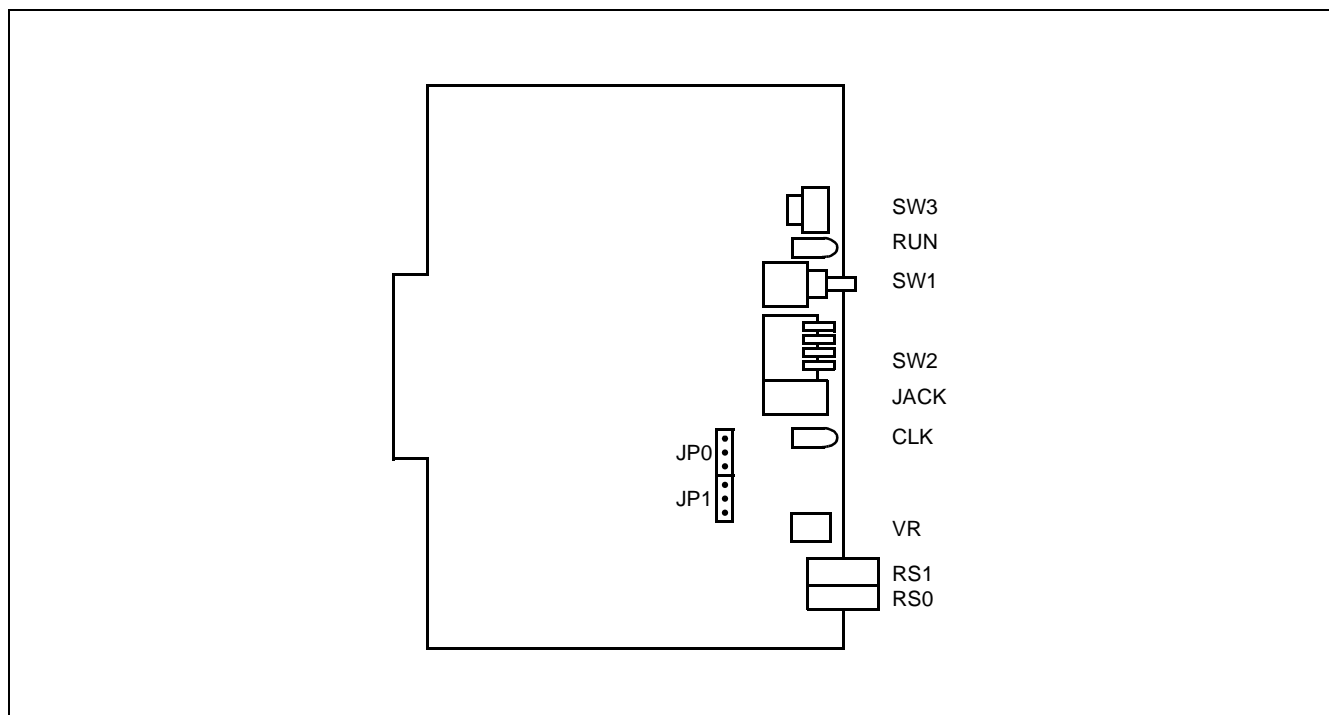

Figure 008-1 PN-CP03 (MP) Card

(2) Lamp Indications (see Table 008-3)

Table 008-3 PN-CP03 (MP) Card Lamp Indications

LAMP NAME	COLOR	FUNCTION
RUN	Green	Flashes at 120 IPM while the circuit card is operating normally.
CLKIN	Green	Lights while receiving clock signals to the PLO oscillator.

(3) Switch Setting (see Table 008-4)
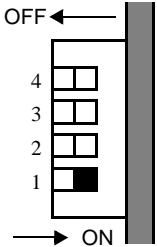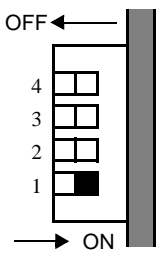
Table 008-4 PN-CP03 (MP) Card Switch Settings
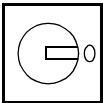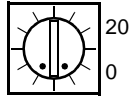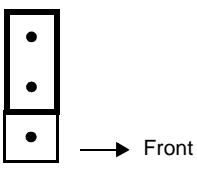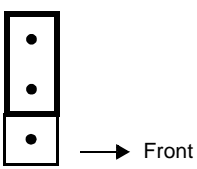
SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW3 (Rotary SW)	0 - F	0	On Line (Call processing is in progress)	
		2	Off Line (Call processing is stopped) • I/O port: Depending on CM40 YY=08	
		3	Off Line (Call processing is stopped) • I/O port: 1200bps (Fixed)	
		B	For clearing office data	
		C	For setting resident system program	
		1, 4 - 9 A, D - F	Not used	
SW1 (Push SW)			For initializing CPU	
SW2 (Piano Key SW)	1	ON	KF Mode	
		OFF	MF/PF Mode	
	2, 3		Selection of PLO (Phase Locked Oscillator) • When using internal PLO of MP card: _table below_	

Selection of PLO (Phase Locked Oscillator)
• When using internal PLO of MP card:

SWITCH NUMBER		FUNCTION
2	**3**	
OFF	OFF	1.5MHz clock [For PN-24DTA/PN-24DTA-A]
ON	OFF	192kHz clock [For PN-BRTA]
OFF	ON	2MHz clock [For PN-30DTC]
ON	ON	Not used

Table 008-4 PN-CP03 (MP) Card Switch Settings (Continued)

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW2 (Piano Key SW)	2, 3		• When using the PLO card (PN-CK00): SW2-2 SW2-3 OFF ON • When not using the internal PLO and the PLO card: SW2-2 SW2-3 OFF OFF	
	4	ON	When using RS1 port for built-in MODEM.	
		OFF	When using RS1 port for RS-232C.	
VR (Rotary SW)			Variable Resistor for External Hold Tone Source (0 - 20 KΩ: Clockwise)	
JP0 (Jumper pin)		UP	For normal operation **Note:** *Do not remove this jumper. The power to RAM will be removed causing loss of Office Data Programming.*	
		DOWN	Not used	
JP1 (Jumper pin)		UP	For normal operation **Note:** *Do not relocate this jumper when power is turned on.*	
		DOWN	For using External Tone Source	

The figure in the SWITCH NAME column and the position in ⬭ in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and ⬭ , the setting of the switch varies with the system concerned.

Note: *Set the groove on the switch knob to the desired switch position.*

ATTENTION
Contents
Static Sensitive
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Precautions Required

CAUTION: When the operating power is being supplied to this circuit card, do not plug/unplug this circuit card into/from its mounting slot.

3. PZ-PW86 (PWR)

(1) Locations of Lamps, Switches, and Connectors (see Figure 008-2)

Figure 008-2   PZ-PW86 (PWR) Card

ATTENTION
Contents
Static Sensitive
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Precautions Required

• PZ-PW86(D)

FRONT VIEW

SIDE VIEW

Figure 008-2   PZ-PW86 (PWR) Card (Continued)
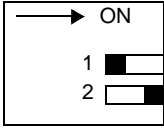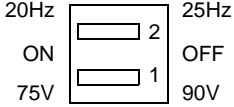
(2)   Lamp Indications (see Table 008-5)

Table 008-5   PZ-PW86 (PWR) Card Lamp Indications

LAMP NAME	COLOR	FUNCTION
MJ	Red	Lights upon occurrence of a major fault.
MN	Yellow	Lights upon occurrence of a minor fault.
ON	Green	Remains lit while the power is on.

(3) Switch Settings (see Table 008-6)

Table 008-6 PZ-PW86 (PWR) Card Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
Mode (Piano Key SW)	1	(OFF)	Always set to OFF	
	2	(ON)	Standard setting for equalize charging (set to equalize for Gel cell or no battery).	
		OFF	Float charging, for <u>vented</u> batteries only.	
SW1		(ON)	For turning AC power and the battery on	
		OFF	For turning AC power and the battery off	
SW102 BATTERY START		PRESS MO-MENTARILY	To start each PIM on battery power, when AC power is not provided (switch "SW" must be ON)	
		(UP)	AC INPUT: 180 V - 264 V	
		DOWN	AC INPUT: 180 V - 264 V	
SW301	1	ON	CR Voltage: 75 Vrms	
		OFF	CR Voltage: 90 Vrms	
	2	ON	Frequency: 20 Hz	
		OFF	Frequency: 25 Hz	

The figure in the SWITCH NAME column and the position in ( ) in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and ( ) , the setting of the switch varies with the system concerned.
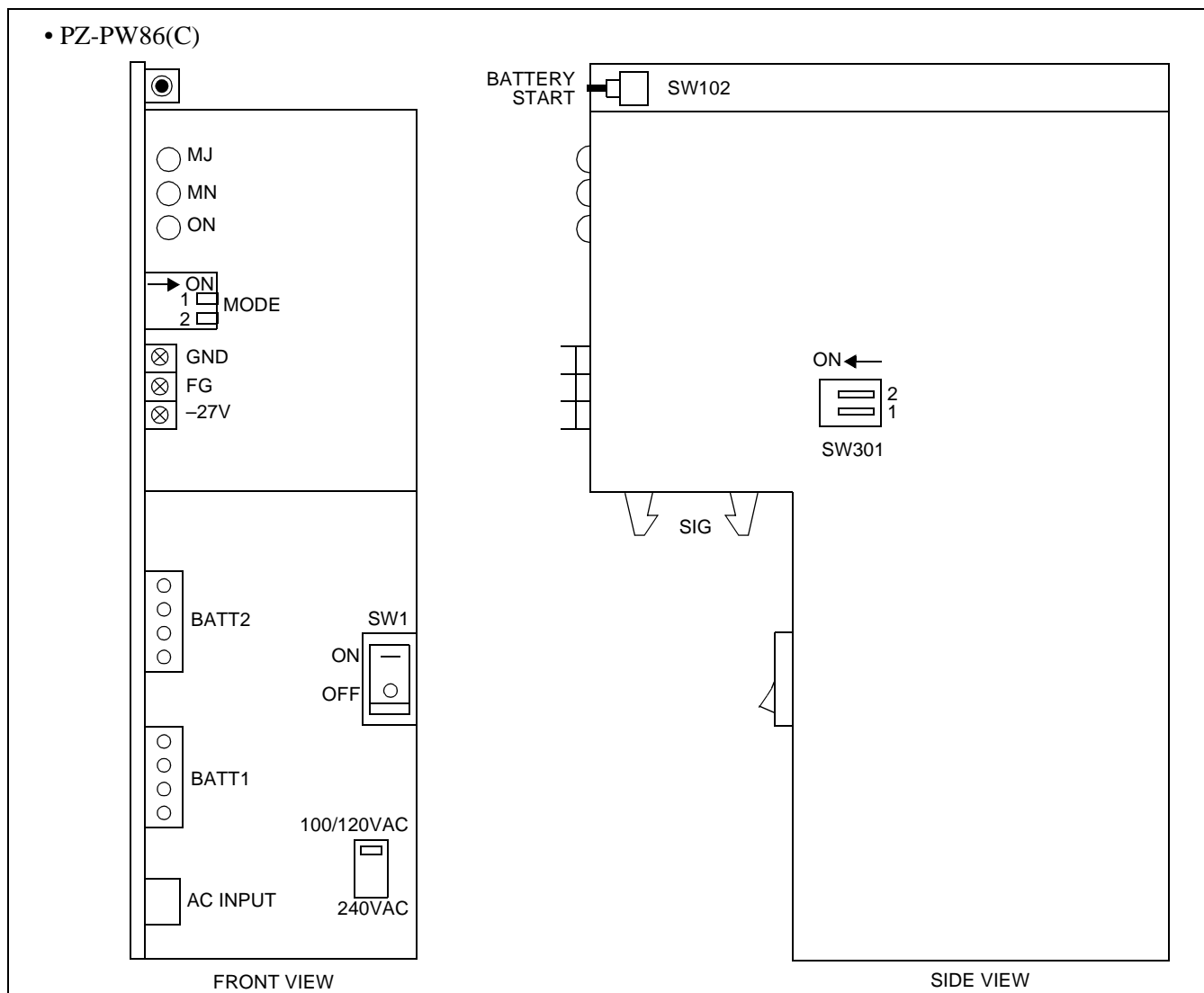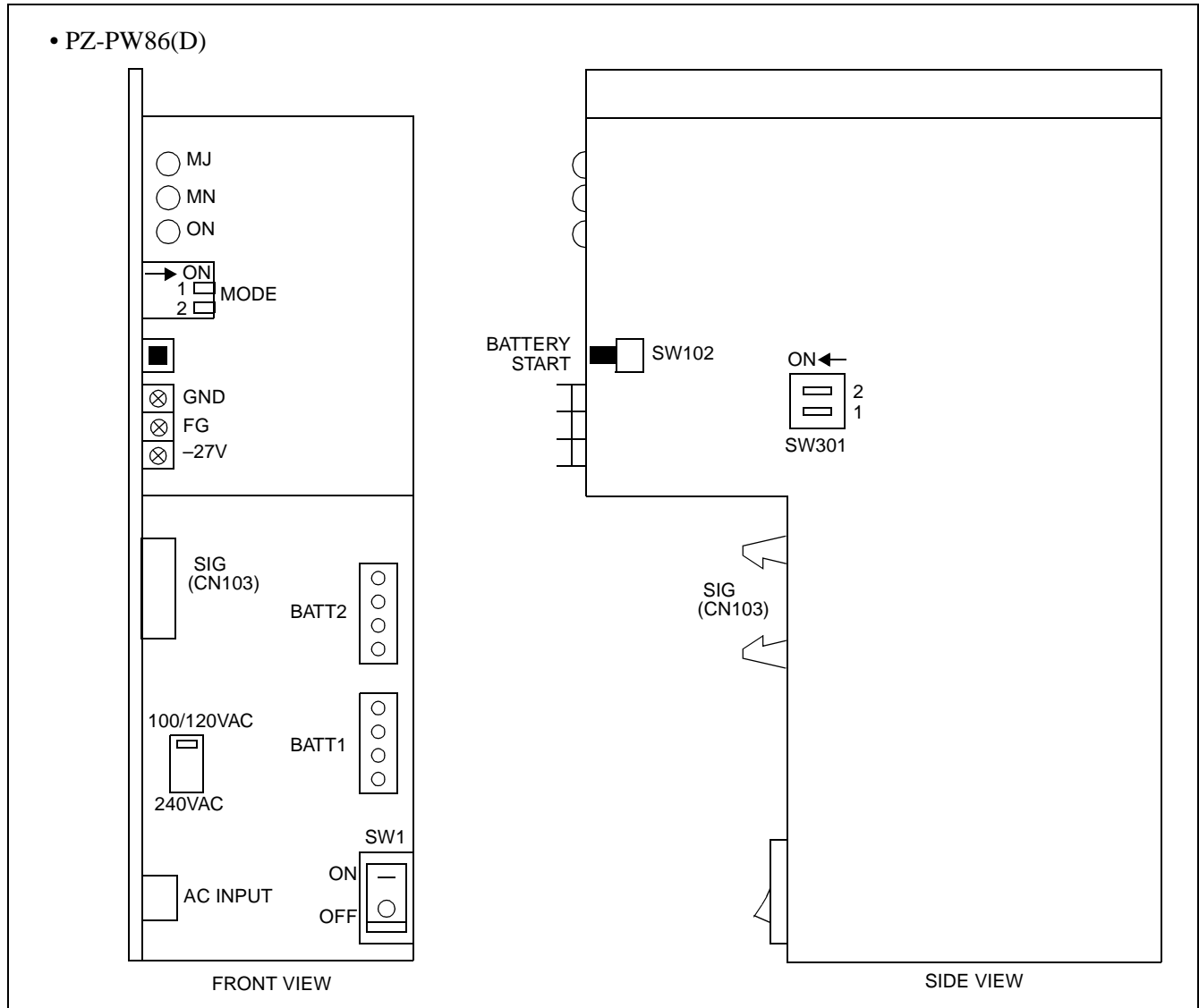
CAUTION: **When the operating power is being supplied to this circuit card, do not plug/unplug this circuit card into/from its mounting slot.**

4. PZ-PW112 (PWR)

(1) Locations of Lamps, Switches, and Connectors (see Figure 008-2)
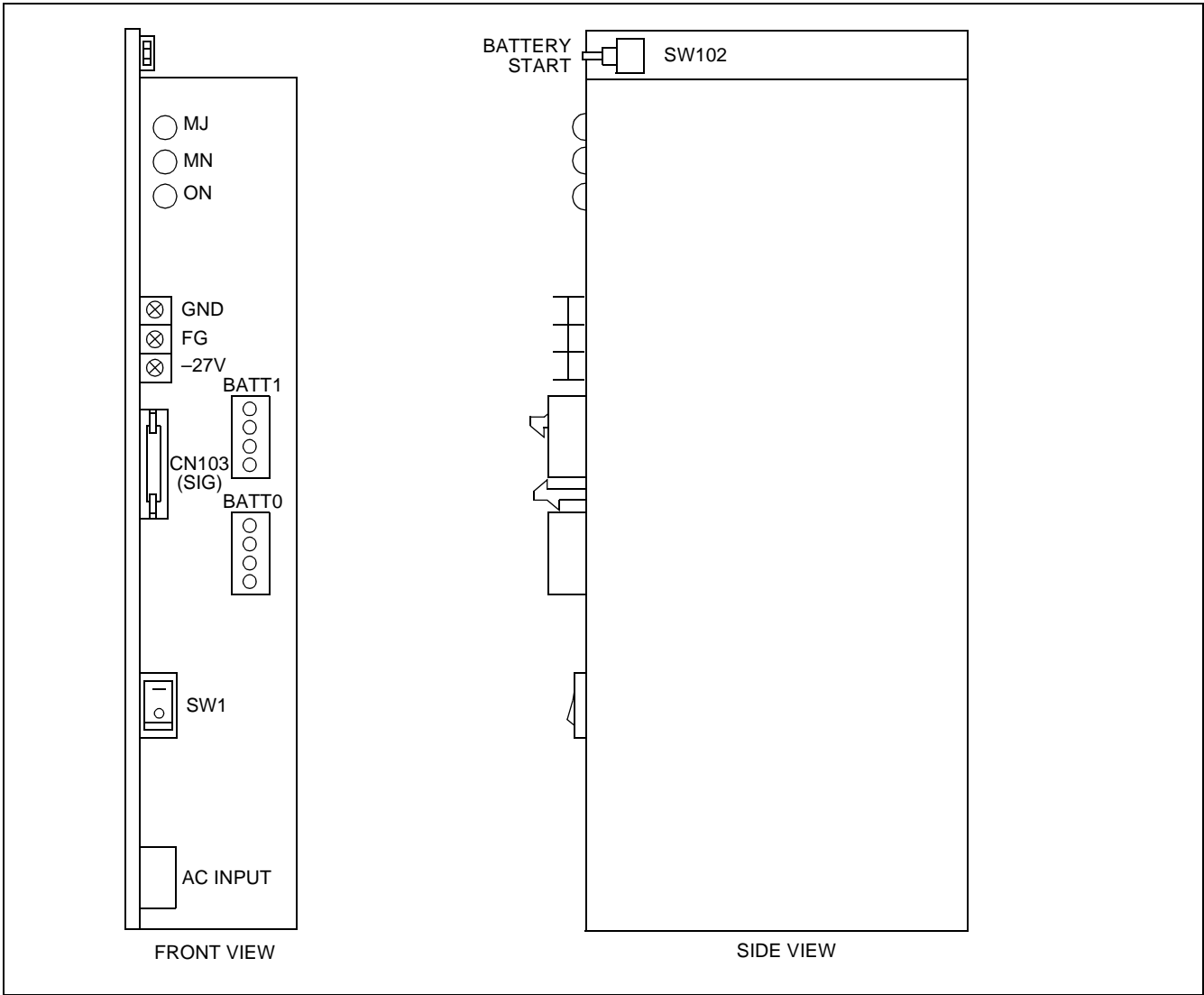
Figure 008-3 PZ-PW112 (PWR) Card
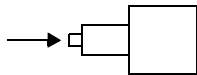
(2)   Lamp Indications (see Table 008-7)

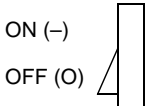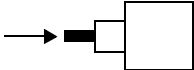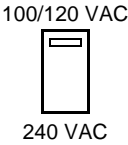**Table 008-7 PZ-PW112 (PWR) Card Lamp Indications**

LAMP NAME	COLOR	FUNCTION
MJ	Red	Lights upon occurrence of a major fault.
MN	Yellow	Lights upon occurrence of a minor fault.
ON	Green	Remains lit while the power is on.

(3)   Switch Settings (see Table 008-8)

Table 008-8 PZ-PW112 (PWR) Card Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW ON (–) OFF (O)		ON	For turning AC power and the battery on	
		OFF	For turning AC power and the battery off	
SW102 (Battery Start)		PRESS MO-MENTARILY	To start each PIM on battery power, when AC power is not provided (switch "SW" must be ON)	

The figure in the SWITCH NAME column and the position in ⬭ in the SETTING POSITION col-
umn indicate the standard setting of the switch. When the switch is not set as shown by the figure and
⬭ , the setting of the switch varies with the system concerned.

5. PN-8COTM/8COTP

(1) Locations of Lamps, Switches and Connectors (see Figure 008-4)

BL7
BL6
BL5
BL4
BL3
BL2
BL1
BL0
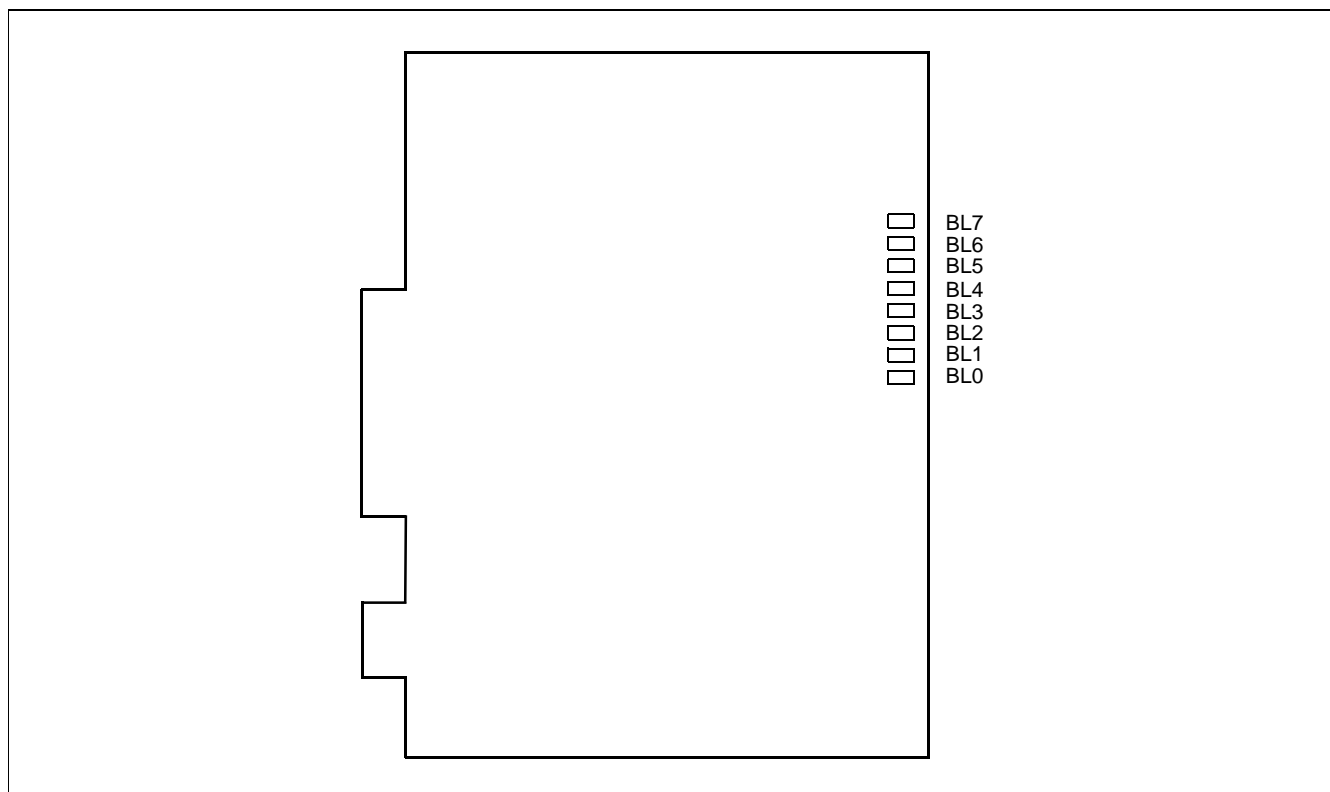
Figure 008-4 PN-8COT (COT) Card

(2) Lamp Indications (see Table 008-9)

Table 008-9 PN-8COT (COT) Card Lamp Indications

LAMP NAME	COLOR	FUNCTION
BL0 - 7	Red	• Remains lit when the corresponding circuit is in use. • Flashes at 60 IPM when the corresponding circuit is in the make-busy state or the system data for this card is not assigned.

(3) Switch Settings

This card has no switches.

1. MOUNTING PROCEDURE

(1) For testing, turn on "SW1" switch on the PZ-PW86/PZ-PW112 card. Make sure that "ON" lamp (green) is lit. See Figure 009-1.

(2) Turn off "SW1" switch.
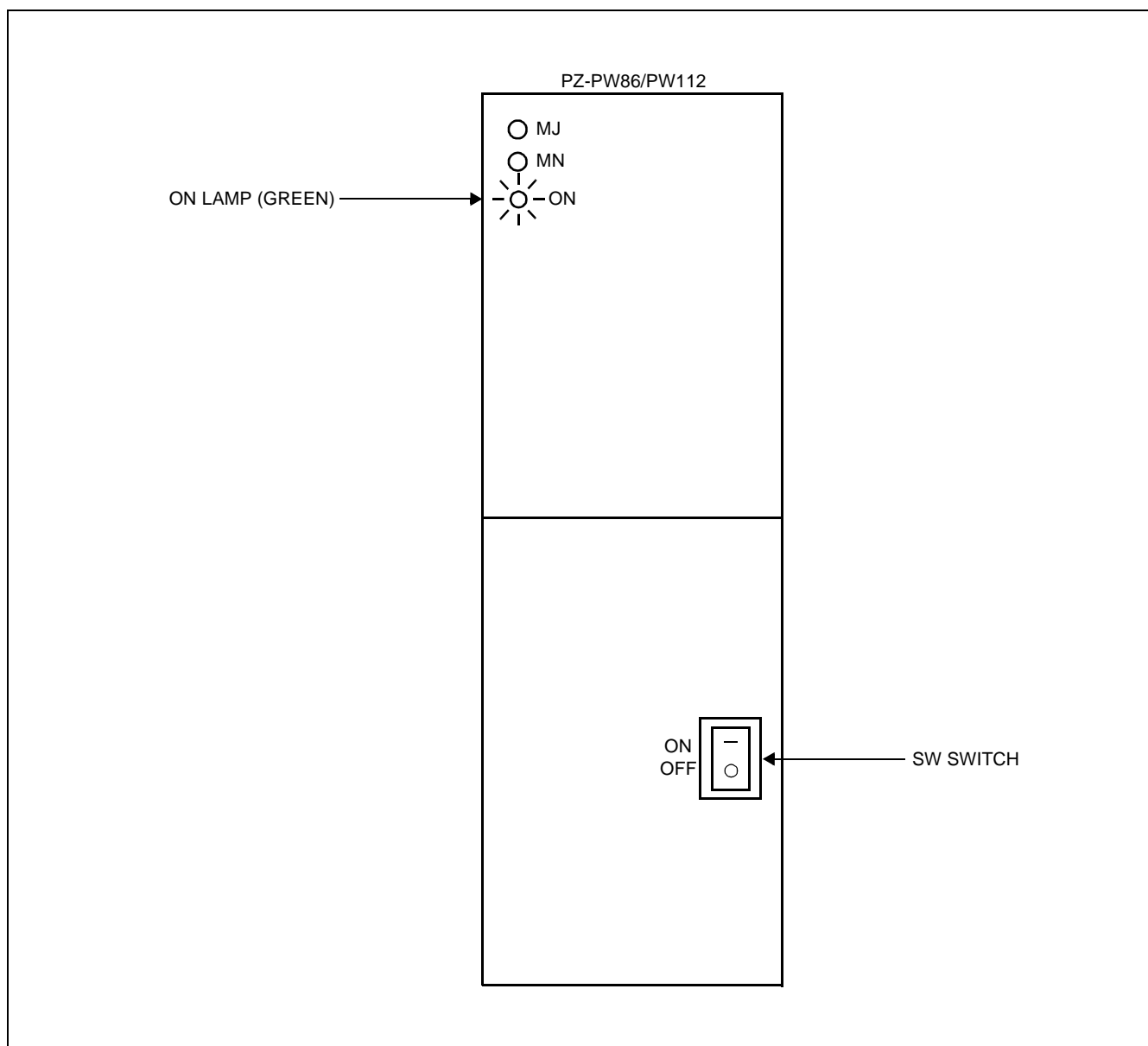
Figure 009-1 PZ-PW86/PZ/PW112 Card Lamp Indication

(3)   Before mounting the circuit cards, confirm the following items.

   •   Wrist Strap is connected Frame Ground.

   •   Switch setting of circuit cards is already completed (Refer to the Circuit Card Manual).

   •   "SW1" switch of PZ-PW86PZ/PW112 Card is turned off.

(4)   Mount circuit cards into their mounting positions according to the "Bay Face Layout" and "Port Assignment Table" given in the System Data Sheet.

   Figure 009-2 shows the mounting method of circuit cards.
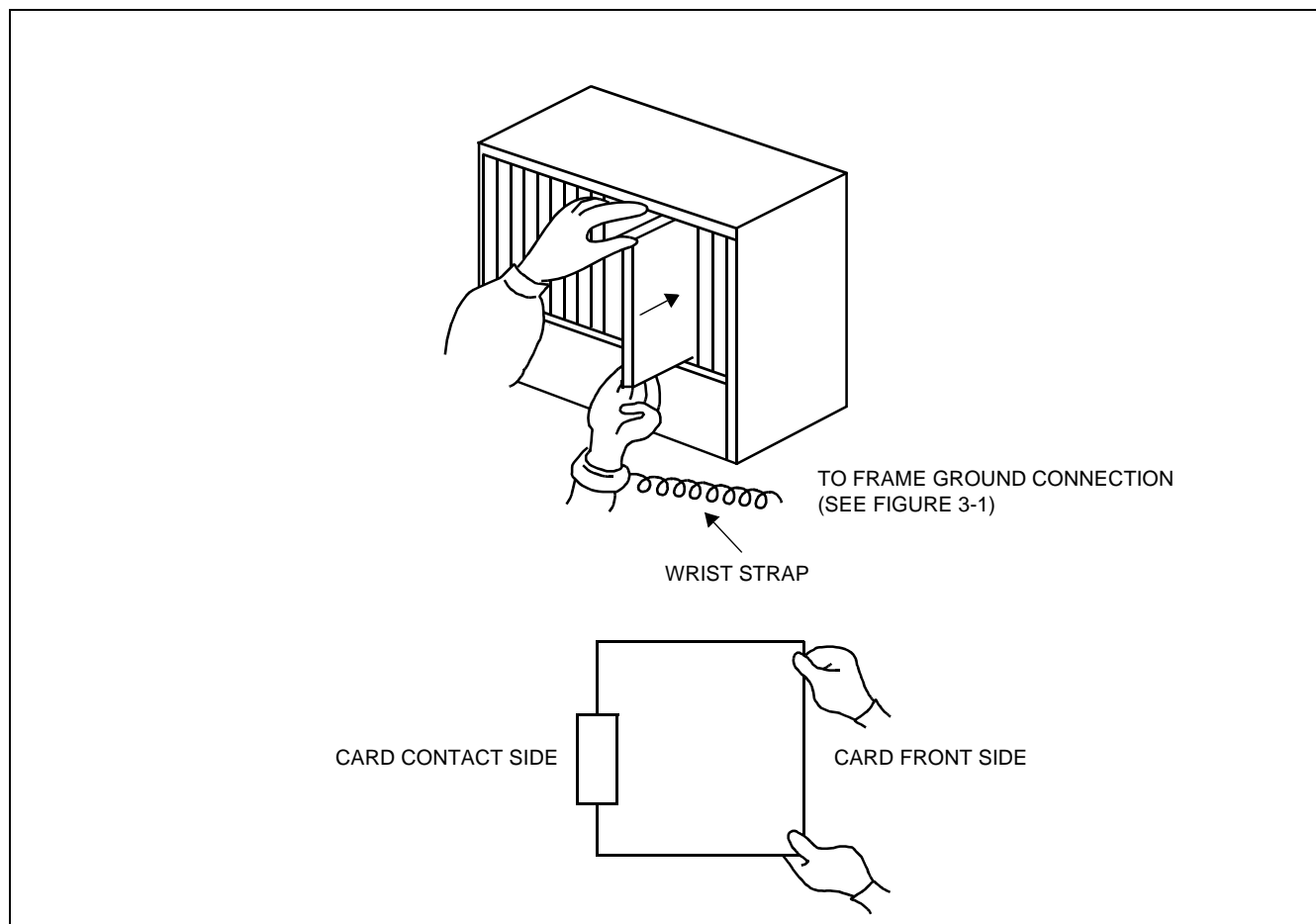
Figure 009-2   Mounting Circuit Cards

(5) Install the Card Stopper according to the following procedure:

(a) Insert the left side of the Card Stopper to the slot for the Card Stopper as shown in Fig.(A) of Figure 009-3.

(b) Loosen the attached screw for the Card Stopper, and hang the right side of the Card Stopper onto the screw. Then, tighten the screw as shown in Fig.(B) of Figure 009-3.
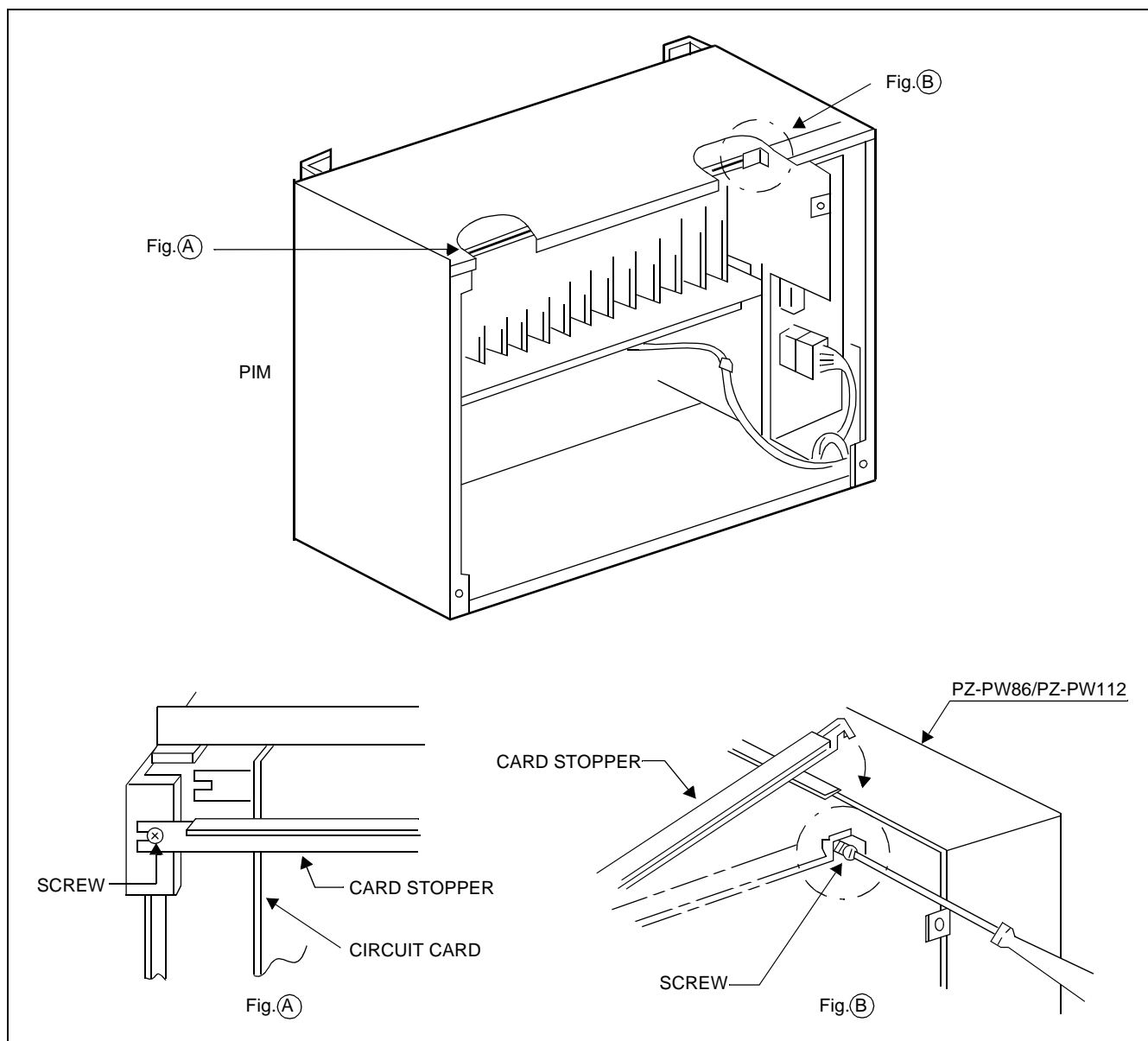
Figure 009-3 Installing Card Stopper

1. SYSTEM INITIALIZATION

- There are two methods for System Initialization. The first method is to Clear All Data, except LEN0000 as a CAT terminal, and then program the System Data. The second method is to use the Resident System Program, which causes the system to configure itself automatically to the default settings, wherever the line/trunk cards are installed. Refer to the System Data Sheet, for the default settings.

- Turn on the "SW1" switch on the PZ-PW86/PZ-PW112 card.

  - The "ON" lamp must be lit on the PZ-PW86/PZ-PW112 card.

1.1 All Clear, Except LEN0000 CAT

STEP 1: On the MP Card, set SW3 to "B" and press SW1.

STEP 2: When the "MN" lamp on the system is lit, set SW3 to the "0" position and press SW1.

  - The operating mode has been changed to the ON LINE mode.

1.2 Resident System Program

STEP 1: Mount the Line/Trunk cards into PIM.

STEP 2: On the MP Card, set SW3 to "C" and press SW1.

  - After 30 to 40 seconds, the "MN" lamp turns on.

  - The system has loaded the Resident System Program.

Note: *If the "MJ" lamp is lit, repeat Step 2.*

STEP 1: Set SW3 to the "0" position and press SW1.

  - The operating mode has been changed to the ON LINE mode.

Note 1: *Refer to the System Data Sheet for additional information on the Resident System Program and the initialization of the system without a MAT (enabling CAT mode).*

Note 2: *After the Resident System Program has been loaded and need to do the System ID load CM83>0> ID number and CM3509, 3520 Route 00 data 15 and System Reset (system with 8COT card).*

2. SYSTEM DATA ENTRY

- There are two methods for data entry, both of which employ a Customer Administration Terminal (CAT) or a Maintenance Administration Terminal (MAT).

2.1 CAT

Any multiline terminal can be assigned as a CAT terminal through programming. The multiline terminal can still be used as a regular telephone when it is not in CAT mode. If the system is initialized by "C" (Resident System Program), every multiline terminal will be able to go into CAT mode. If the system is initialized by "B" (All Clear), only LEN0000 is assigned as a CAT port (the DLC card must be installed in slot LT00).

The following procedures provide actions to set up a multiline terminal as a CAT.

To set CAT mode:

(1) Press ⬚ TRF

(2) Press ⬚ CNF

    - CNF lamp flashes.

(3) Press ⬚ ✱

    - CNF lamp is off.

(4) Press ⬚ TRF

(5) Press ⬚ CNF

    - CNF lamp flashes.

(6) Press ⬚ #

    - CNF, SPKR, ANS lamps are lit.

    - "CAT MODE" displays on the LCD.

(7) Press ⬚ ST

    - "COMMAND = -" displays on the LCD.

Note: *It is necessary to complete Steps 1 through 6 within 4 seconds.*

To reset CAT mode:

While "COMMAND = -" is displayed on the LCD:

    (1) Lift the handset (off hook)

        - SPKR lamp turns off.

    (2) Restore the handset (on hook)

        - CNF, ANS lamps turn off.

        - LCD returns to clock.

The 48-port Quick Install program allows the technician to set up the NEAX1000 IVS by completing a step-by-step guide to install and program stations, line keys, and selective features into the NEAX1000 IVS. Additional programming can be done using the CAT or MAT.

2.2   MAT

In addition to the CAT mode programming, the MAT can also be used in the MAT mode. Refer to the MAT Operation Guide and the Command Manual.

2.3   Feature Programming

This section provides the feature programming (Music On Hold, Push Button Calling) related to the internal PB Receiver and internal TNT on the MP card. For the other feature programming, refer to the Feature Programming Manual.

In the programming procedure, the meaning of (1), (2) and marking are as follows:

(1) ： 1st Data

(2) ： 2nd Data

◄ ： Initial Data
With the system data clear command (CM00, CM01), the data with this marking (◄) is automatically assigned for each command.

(INITIAL) : System Initialization

After entering the data, system initialization is required (Press SW1 on MP card).

(1) Programming Procedure for Music On Hold

For providing Hold Tone Source on the MP card:

START	**DESCRIPTION**	**DATA**
CM08	Select the music to be provided.	(3) 183 (4) 0: Nocturne 1◀ : Minuet
CM48	Define the type of call to be provided with Hold Tone on the MP card. **Note:** *When using the MP card, set the JP1 switch to UP (Internal Hold Tone Source).*	**.** Y = 0 (1) 00: C.O. Line Call 01: Tie Line Call 02: Internal Call (2) 1400: Hold Tone Source on MP card
END		

For providing External Hold Tone Source through the MP card:

START	**DESCRIPTION**	**DATA**
CM48	Define the type of call to be provided with Hold Tone.	**.** Y = 0 (1) 00: C.O. Line Call 01: Tie Line Call 02: Internal Call (2) 1400: Hold Tone Source through MP card
END		

For providing External Hold Tone Source through MP card:

- External Hold Tone Source provided locally

  For connecting the External Hold Tone Source, plug the cable into the MP card jack. See Figure 0010-1.
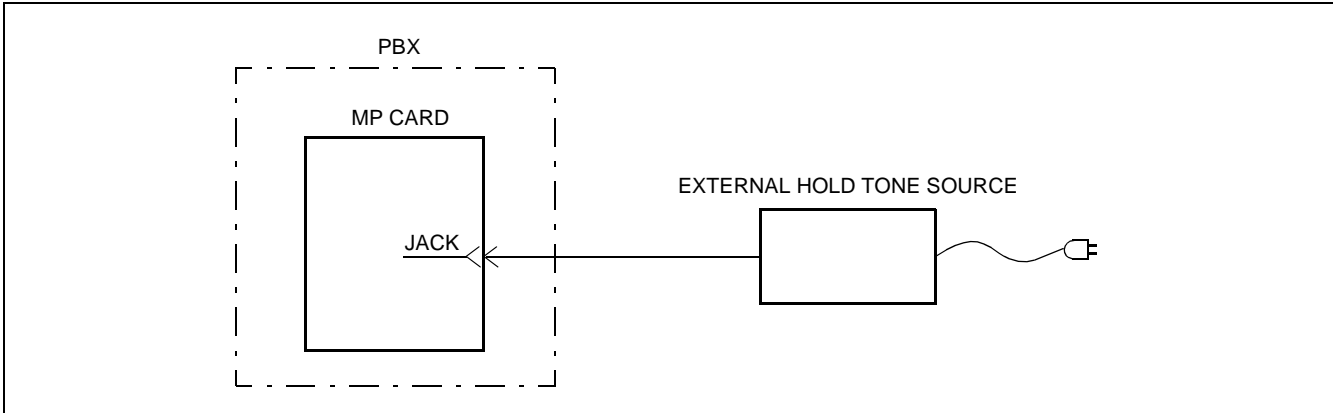
Figure 0010-1 Connecting External Hold Tone Source

Set the switches on the MP card as shown in Figure 0010-2.
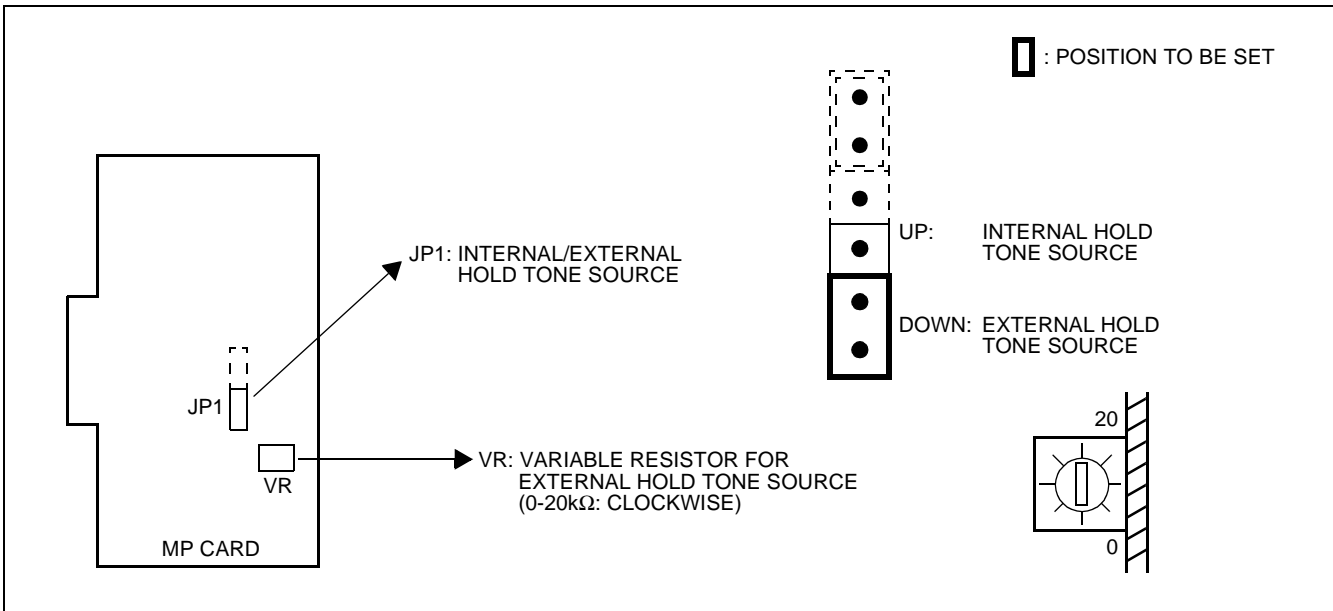
Figure 0010-2 MP Card Switch Setting

Note: *To set Hold Tone Source on the MP card, set the JP1 switch to UP.*

(2) Programming Procedure for Pushbutton Calling

START	**DESCRIPTION**	**DATA**

CM10 — Assign the Card Number of internal PB Receiver to the LEN No. 0124. (INITIAL)

(1) LEN: 0124
(2) E200-E203 (PB Receiver No.)

Note: *When using the internal PB Receiver on the MP card, assign the Card No. E200-E203 to the LEN No. 0124.*

If resident load is used, PB Receiver ports (E200-LENS 0124) are automatically assigned.

CM12 — Assign the type of telephone set (DTMF) to DTMF Stations.
This data assignment is not required for Multiline Terminal station.

. YY = 00
(1) X-XXXX (Station No.)
(2) 2 : DTMF Telephone set

CM45 — Assign PB Receivers for use with DTMF Stations.

. Y = 0 (Make Busy)
(1) XX X
         └ Circuit No. 0-3
         └── Card No. 00-03 assigned by CM10(E200-E203)

(2) ◄ :Make Busy Cancel

. Y = 1 (Purpose)
(1) XXX (Ditto to Y = 0)
(2) 1◄ :For both DTMF station and Tie Line/ DID

A

	DESCRIPTION	DATA

A

CM35

Assign the type of signaling (DTMF) for Outgoing and Bothway Trunk Routes.

. YY = 01
(1) Trunk Route No. (00 - 63)
(2) 7◀

Specify the DTMF Sender characteristics to match the distant office.

. YY = 24 (DTMF Inter Digital Pause)
(1) Trunk Route No. (00 - 63)
    0 : 32ms
    1 : 64ms
    2 : 80ms
    3 : 96ms
    4 : 160ms
    5 : 192ms
    6 : 240ms
    7◀ : 128ms

. YY = 26 (DTMF Sender Signal Width)
(1) Trunk Route No. (00 - 63)
(2) 0/1◀ : 64ms/128ms

. YY = 46 (DTMF Sender Release Timing)
(1) Trunk Route No. (00 - 63)
    0 : 2sec.
    1 : 4sec.
    2 : 6sec.
    3 : 8sec.
    4 : 12sec.
    5 : 14sec.
    6 : 16sec.
    7◀ : 10sec.

CM08

Assign whether "*" or "#" from a DTMF Telephone is used as Switch Hook Flash while hearing Busy Tone.

(1) 050 (* is used as Switch Hook Flash)
(2) 0: Available
(1) 052 (# is used as Switch Hook Flash)
(2) 0: Available

END

1. OPERATION TEST

Confirm the entered system data and hardware, including cable connection, by completing the following operational tests.

- Basic Connection Test at MDF

    - Station Line Test (Operator Call from all stations)

    - Central Office Trunk Test (Incoming, Outgoing)

    - Tie Line Trunk Test (Incoming, Outgoing)

- Service Feature Test

    - Call Transfer

    - Step Call

    - Executive Right of Way

    - Call Hold

    - Call Back

    - Call Forwarding-All Calls/No Answer/Busy Line

    - Call Pickup

    - Station Hunting-Pilot/Circular

    - Speed Calling-System/Station

    - Paging Access

    - Announcement Service

    - etc.

1. CLEANING

Clean the following places:

- Inside of the main equipment, especially the bottom of the base.

- On the Top Cover.

- Around the Main Equipment and the MDF.

- Keyboard on the Attendant Console.

2. VISUAL CHECK

(1) Check to see if all circuit cards are in their positions correctly.

(2) Check that the cable connections in the PIM are correctly and completely connected, and the routing of the cables has been done smoothly and neatly.

(3) Check to see if the MAT is removed.

1. MOUNTING FRONT COVER

Mount the Front Cover onto PIM using the provided screws as shown in Figure 013-1.
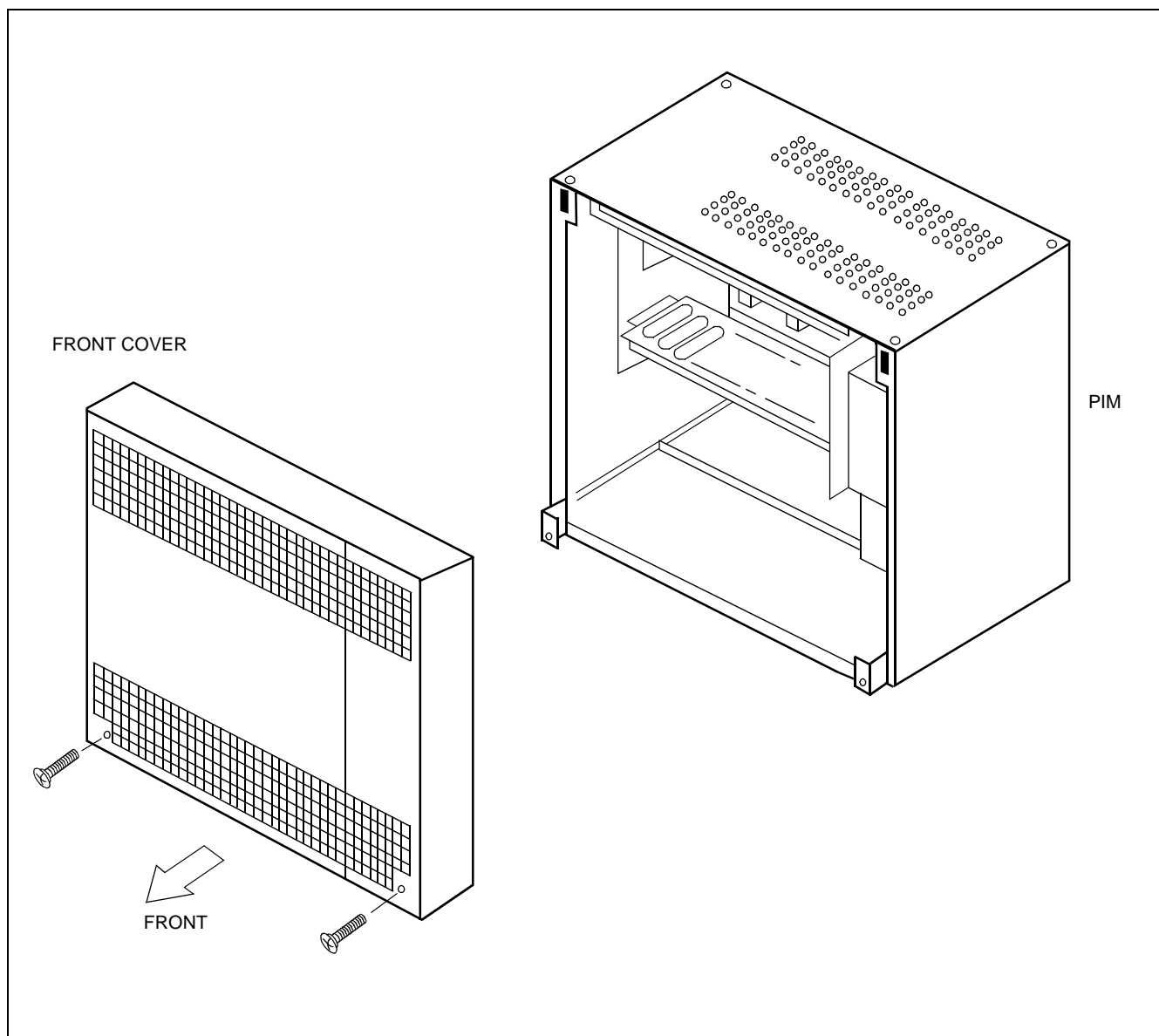
Figure 013-1 Mounting Front Cover

This page is for your notes.

CHAPTER 4   OFFICE DATA PROGRAMMING

1.   CUSTOMIZING DATA

1.1   Data Programming Procedure

Table 4-1 shows the procedure and the outline of the work related data programming for the system.

Table 4-1   Data Programming Procedure

STEP	WORK	REMARKS
1	Obtain the customer's requirements, and fill in the Customer Specification Sheets on Section 1.3.	
2	Allocate the LC, TRUNK and other interface cards to the Port Assignment Table on Section 1.2.7. Make a Bay Face Layout on Section 1.4.2 for accommodating cards required in the system.	
3	Fill in the data programming sheets on Section 2 with the Customer Specification Sheet, Port Assignment Table and Bay Face Layout completed as steps 1 and 2.	For programming method and detailed information on commands, refer to the Command Manual.
4	Ensure that the data on all programming sheets are correct and consistent with customer specifications.	
5	Specify the switch setting on the boards with the Switch Setting Table in the Circuit Card Manual.	For the function of each switch on the cards, refer to the Circuit Card Manual.

1.2   General Information on Customizing Data

1.2.1   Numbering Plan

This table specifies the service feature access codes, trunk access code, station numbers and other special access codes. The service feature access codes and trunk access codes are given to each service feature and each trunk routes, respectively, with a maximum three-digit code. The station numbers are specified by a maximum of four digits.

For the numbering plan of the system the following conditions should be considered.

(1)   The same first digit code cannot be assigned to the other features within the Numbering Plan Group programmed. (This condition is not applicable to the system providing the Single Digit Timing Start Access.)

(2)   The feature access codes should be two or three digits because multiple access codes for each feature are required.

(3)   There are four types of station numbering (1 digit – 4 digits), and any combination of these types is available in one system.

(4)   The same station number cannot be assigned, even if the tenant service is applied.

1.2.2 Station Data

In this table, the following data are required.

- Station Number: Station numbers (up to four digits), specified in the Numbering Plan Table, are assigned. For the Multiline Terminal station, specify the Primary Extension Number.

- Type of Telephone

  The type of station telephone set is specified as shown below.

  TYPE OF TEL   DESCRIPTION

  DP.................................. Dial Pulse Telephone set
  PB .... DTMF Telephone set
  Multiline Terminal.......... Multiline Terminal set

- SERVICE CLASS-A/B/C

  Specify the service class (1-15) programmed in the Service Restriction Data Table.

- RESTRICTION CLASS-DAY/NIGHT

  Specify the Trunk Restriction Class as shown below.

  1: Unrestricted
  2: Non-Restricted-1
  3: Non-Restricted-2
  4: Semi-Restricted 1
  5: Semi-Restricted 2
  6: Restricted 1
  7: Restricted 2
  8: Fully-Restricted

- DIT TRUNK NUMBER

  In the case of the DIT (Direct-In Termination) station, specify the trunk number connected.

1.2.3 Trunk Data

In this table, the following data are required:

- ACCESS NUMBER

  Specify the access code for the trunks.

- DESTINATION

  Specify the distant office such as Central Office (Public Exchange), Tie Line, etc.

- NUMBER OF LINE

  Specify the number of trunks to be provided with each route (IC-Incoming, OG-Outgoing, BW-Bothway).

- DP/PB

  Specify the type of address signal from/to distant office, as shown below.

TYPE OF TEL	DESCRIPTION
DP	Dial Pulse
PB	DTMF Signal

- KIND OF SIGNAL

  Specify the kind of signaling system such as Ring Down, Loop, E & M etc. at the line.

1.2.4 Station Hunting Group Data

This data table requires the following data:

- KIND OF STATION HUNTING

  Specify the kind of the Station Hunting System (Pilot/Circular/Switch Back). In the case of the Pilot System, specify the Pilot Station Number.

- SECRETARY STATION

  Specify the Secretary Station Number, if provided.

- STATION NUMBER

  Specify the station numbers to be assigned to the station hunting group with the following conditions.

  (1) Up to 60 stations can be assigned per Station Hunting Group.

  (2) There is no limitation to the number of Station Hunting Groups.

  The same one station cannot be assigned to multiple Hunting Groups.

1.2.5 Call Pickup Group Data

The station number to be assigned to the Call Pickup Group with the following conditions.

  (1) Up to 60 station can be assigned per Call Pickup Group.

  (2) There is no limitation to the number of Call Pickup Groups.

  (3) The same one station cannot be assigned to multiple Call Pickup Groups.

1.2.6 Speed Calling-System Data

This data table requires the abbreviated code and the stored number to be sent out. A maximum stored number of 28 digits can be assigned.

1.2.7 Port Assignment Table

Specify the station number or trunk number corresponding to the LEN (Line Equipment Number) as shown in Table 4-2. The LEN means physical location number within the PIM.

Table 4-2 Port Assignment Method

CARD TO BE ASSIGNED	PORT ASSIGNMENT TABLE	REMARKS

PN-8LC
PN-8DLC
PN-8COT
		• For PN-8DLC, specify primary extension numbers of multiline terminal as follows:
		
		  FXXX
		  └── Primary Extension Number

PN-4LC
PN-4DLC
		• Station number must be assigned to 1st LEN (LEVEL 0) through 4th LEN (LEVEL 3) of each LT slot.
		
		• For PN-4DLC, specify primary extension numbers of multiline terminal as follows:
		
		  FXXX
		  └── Primary Extension Number

Table 4-2 Port Assignment Method (Continued)

CARD TO BE ASSIGNED	PORT ASSIGNMENT TABLE	REMARKS

PN-AUC
PN-2DLC
	LT00
	LEVEL 7 — 0007 → Not to be assigned
	LEVEL 6 — 0006 →
	LEVEL 5 — 0005 →
	LEVEL 4 — 0004 →
	LEVEL 3 — 0003 →
	LEVEL 2 — 0002 →
	LEVEL 1 — 201/0001 → Station No.
	LEVEL 0 — 200/0000 →
		• Station number must be assigned to 1st LEN (LEVEL 0) and/or 2nd LEN (LEVEL 1) of each LT slot.
		
		• For PN-2DLC, specify primary extension numbers of multiline terminal as follows:
		
		    FXXX
		        Primary Extension Number

PN-4COT PN-4DIT	LT00 LEVEL 7 — 0007 → Not to be assigned LEVEL 6 — 0006 → LEVEL 5 — 0005 → LEVEL 4 — 0004 → LEVEL 3 — D003/0003 → Trunk No. (D000-D255) LEVEL 2 — D002/0002 → LEVEL 1 — D001/0001 → LEVEL 0 — D000/0000 →	• Trunk number must be assigned to 1st LEN (LEVEL 0) through 4th LEN (LEVEL 3) of each LT slot.
PN-AUC PN-2ODT	LT00 LEVEL 7 — 0007 → Not to be assigned LEVEL 6 — 0006 → LEVEL 5 — 0005 → LEVEL 4 — 0004 → LEVEL 3 — D003/0003 → LEVEL 2 — D002/0002 → LEVEL 1 — D001/0001 → Trunk No. (D000-D255) LEVEL 0 — D000/0000 →	• Trunk number must be assigned to 1st LEN (LEVEL 0) and/or 2nd LEN (LEVEL 1) of each LT slot.

Table 4-2 Port Assignment Method (Continued)

CARD TO BE ASSIGNED	PORT ASSIGNMENT TABLE	REMARKS
PN-2DAT		• Card number must be assigned to 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot.
PN-8RST		• Card number must be assigned to 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot. **Note:** *When using the internal DTMF Receiver on the MP card, assign Card No. E200 to LEN No. 0124.*
PN-DK00		• Card number must be assigned to 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot. • Card numbers of External Equipment Interface are E800-E807. • Card numbers of External Key Interface are E900-E915.

Table 4-2 Port Assignment Method (Continued)

CARD TO BE ASSIGNED	PORT ASSIGNMENT TABLE	REMARKS
PN-CFT	LT00 LEVEL 7: – / 0007 ← Not to be assigned LEVEL 6: – / 0006 LEVEL 5: – / 0005 LEVEL 4: – / 0004 LEVEL 3: – / 0003 LEVEL 2: – / 0002 LEVEL 1: – / 0001 LEVEL 0: ED00 / 0000 ← Card No. (ED00-ED03)	• Card number must be assigned to 1st LEN (LEVEL 0) of each LT slot.
PN-2DPC	LT00 LEVEL 7: – / 0007 ← Not to be assigned LEVEL 6: – / 0006 LEVEL 5: – / 0005 LEVEL 4: – / 0004 LEVEL 3: – / 0003 LEVEL 2: F201 / 0002 ← Primary Extension No. (FX-FXXXX) LEVEL 1: – / 0001 LEVEL 0: F200 / 0000	• To assign data station number to PN-2DPC by CM1A, specify primary extension number of multiline terminal as a dummy station number. • Primary extension number must be assigned to 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot.
PN-TNT	LT00 LEVEL 7: – / 0007 ← Not to be assigned LEVEL 6: – / 0006 LEVEL 5: – / 0005 LEVEL 4: – / 0004 LEVEL 3: – / 0003 LEVEL 2: DA09 / 0002 ← Card No. (DA00-DA09) LEVEL 1: – / 0001 LEVEL 0: DA00 / 0000	• Card number must be assigned to 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot.

Table 4-2 Port Assignment Method (Continued)

CARD TO BE ASSIGNED	PORT ASSIGNMENT TABLE	REMARKS
PN-2AMP	LT00 LEVEL 7 _ 0007 — Not to be assigned LEVEL 6 _ 0006 LEVEL 5 _ 0005 LEVEL 4 _ 0004 LEVEL 3 _ 0003 LEVEL 2 C101 0002 — Card No. (C100-C163) LEVEL 1 _ 0001 LEVEL 0 C100 0000	• Card number must be assigned to the 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot.
PN-2ILC	LT00 LEVEL 7 _ 0007 — Not to be assigned LEVEL 6 _ 0006 LEVEL 5 _ 0005 LEVEL 4 _ 0004 LEVEL 3 _ 0003 LEVEL 2 _ 0002 LEVEL 1 201 0001 — ISDN Circuit Station No. LEVEL 0 200 0000	• ISDN circuit station number must be assigned to 1st LEN (LEVEL 0) and/or 2nd LEN (LEVEL 1) of each LT slot.

1.3 Customer Specification Sheets

This section provides the various sheets for designing the customer specifications of the PBX. The office data required for customizing the system are programmed with the customer specification. The installer should complete the following sheets by referring the RESIDENT SYSTEM PROGRAM in the Command Manual and Section 1.2 General Information on Customizing Data of this chapter.

1.3.1 Numbering Plan

Table 4-3 Numbering Plan Data Table

Numbering Plan Group		PROGRAMMING: CM20, 21
ACCESS CODE	FUNCTIONS	REMARKS

Note: *If space is insufficient, use copies.*

1.3.2 Station Data

Table 4-4 Station Data Table

Department or Section			Tenant		PROGRAMMING: CM10,11,12,13,15

STATION NUMBER	TYPE OF TEL	SERVICE CLASS		RESTRICTION CLASS		DID TRUNK NUMBER	REMARKS
		A	B	DAY	NIGHT		

Note: *If space is insufficient, use copies.*

1.3.3 Trunk Data

Table 4-5 Trunk Data Table

						PROGRAMMING: CM10, 30, 35, 36	
ACCESS NUMBER	**DESTINA-TION**	**KIND OF TRUNK**	**TYPE OF TRUNK**	**NUMBER OF LINE**	**DP/PB**	**KIND OF SIGNAL**	**REMARKS**
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				

Note: *If space is insufficient, use copies.*

1.3.4 Station Hunting Group Data

Table 4-6 Station Hunting Group Data Table

			PROGRAMMING: CM18
KIND OF STATION HUNTING	**KIND OF STATION HUNTING**	**KIND OF STATION HUNTING**	**KIND OF STATION HUNTING**
Pilot ( )	Pilot ( )	Pilot ( )	Pilot ( )
Circular	Circular	Circular	Circular
Switch Back	Switch Back	Switch Back	Switch Back
SECRETARY STATION	**SECRETARY STATION**	**SECRETARY STATION**	**SECRETARY STATION**
STATION NUMBER	**STATION NUMBER**	**STATION NUMBER**	**STATION NUMBER**

Note: *If space is insufficient, use copies.*

1.3.5   Call Pickup Group Data

Table 4-7 Call Pickup Group Data Table

<div style="text-align:right">

PROGRAMMING: CM16

</div>

STATION NUMBER	STATION NUMBER	STATION NUMBER	STATION NUMBER

Note: *If space is insufficient, use copies.*

1.3.6 Speed Calling-System Data

Table 4-8 Speed Calling-System Data Table

PROGRAMMING: CM71, 72

ABBREVIATED CODE	SENDING NUMBER	REMARKS

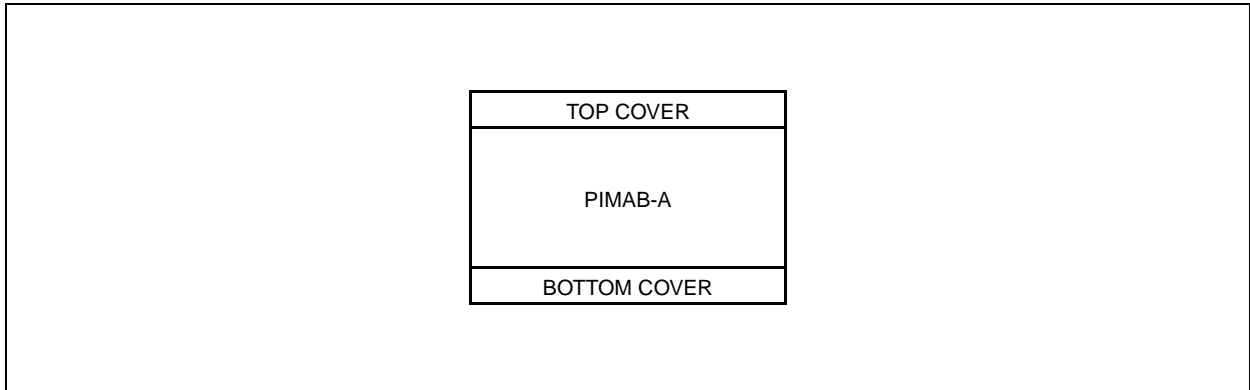**Note:**   *If space is insufficient, use copies.*

1.4 System Configuration

1.4.1 Port Assignment Table

Table 4-9 Port Assignment Table

LT SLOT No. →

LT00	LT01	LT02	LT03	LT04	LT05	LT06	LT07	LT08
0127	0071	0079	0087	0095		0103		0111
0126	0070	0078	0086	0094		0102		0110
0125	0069	0077	0085	0093		0101		0109
0124	0068	0076	0084	0092		0100		0108
0123	0067	0075	0083	0091	0095	0099	0103	0107
0122	0066	0074	0082	0090	0094	0098	0102	0106
0121	0065	0073	0081	0089	0093	0097	0101	0105
0120	0064	0072	0080	0088	0092	0096	0100	0104

Fill Blank With Station/Trunk No. →

LEN No. →

PIM1

LT SLOT No. →

LT00	LT01	LT02	LT03	LT04	LT05	LT06	LT07	LT08
0063	0007	0015	0023	0031		0039		0047
0062	0006	0014	0022	0030		0038		0046
0061	0005	0013	0021	0029		0037		0045
0060	0004	0012	0020	0028		0036		0044
0059	0003	0011	0019	0027	0031	0035	0039	0043
0058	0002	0010	0018	0026	0030	0034	0038	0042
0057	0001	0009	0017	0025	0029	0033	0037	0041
0056	0000	0008	0016	0024	0028	0032	0036	0040

Fill Blank With Station/Trunk No. →

LEN No. →

PIM0

1.4.2   Bay Face Layout for Module

```
                    ┌─────────────────────┐
                    │     TOP COVER        │
                    ├─────────────────────┤
                    │                      │
                    │      PIMAB-A         │
                    │                      │
                    ├─────────────────────┤
                    │    BOTTOM COVER      │
                    └─────────────────────┘
```

Figure 4-1   Module Configuration

Table 4-10 Quantity Table for Module

FUNCTIONAL NAME	MODULE	QUANTITY	REMARKS
PIM	SN1420 PIMAB-A		
TOP/BOTTOM COVER		1	
19" BRACKET	19" BRACKET (H)		

1.4.3 Quantity Table for Circuit Cards

Table 4-11 Quantity Table for Line/Trunk Circuit Cards

FUNCTIONAL NAME (CARD NAME)	QUANTITY	FUNCTIONAL NAME (CARD NAME)	QUANTITY
AMP (PN-2AMP)		DLC (PN-8DLC)	
AUC (PN-AUC)		DPC (PN-2DPC)	
CFT (PN-CFT)		ILC (PN-2ILC)	
COT (PN-4COT)		LC (PN-4LC)	
COT (PN-8COT)		LC (PN-8LC)	
DAT (PN-2DAT)		M03 (PN-M03)	
DIT (PN-4DIT)		ODT (PN-2ODT)	
DK (PN-DK00)		PBR (PN-8RST)	
DLC (PN-2DLC)		TNT (PN-TNT)	
DLC (PN-4DLC)			

Table 4-12 Quantity Table for Control Circuit Cards

FUNCTIONAL NAME (CARD NAME)	QUANTITY	FUNCTIONAL NAME (CARD NAME)	QUANTITY
MP (PN-CP03)	1	PWR (PZ-PW86)	
BS00 (PN-BS00-B)		PWR (PZ-PW112)	
BS01 (PN-BS01-B)			

Table 4-13 Quantity Table for Application Circuit Cards

FUNCTIONAL NAME (CARD NAME)	QUANTITY	FUNCTIONAL NAME (CARD NAME)	QUANTITY
AP00 (PN-AP00)		DTI (PN-24DTA)	
AP01 (PN-AP01)		ETHER (PN-CC00)	
BRI (PN-BRTA)		EXTMEM (PN-ME00)	
CCH (PN-SC00)		ICH (PN-SC02/SC03)	
CIR (PN-4RSTC)		MFR (PN-4RST)	
DCH (PN-SC01)		PLO (PN-CK00)	